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THE
AMERICAN EPHEMERIS
AND
NAUTICAL ALMANAC

FOR THE YEAR

1901

SECOND EDITION

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PUBLISHED BY AUTHORITY OF THE SECRETARY OF THE NAVY

WASHINGTON:
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PREFACE.

WHILE the general arrangement of the *American Ephemeris* remains substantially as in the years from 1882 to 1899, some changes have been introduced in the present volume which may be briefly stated as follows: First, in view of the wide differences of opinion among American astronomers respecting the decisions of the Paris Conference of 1896, it has not seemed expedient to accept exclusively any of the constants recommended by that body, except the value of the solar parallax. The course pursued has therefore been to adopt 8.80" for the constant of solar parallax, and to give two wholly distinct sets of constants for precession, nutation, aberration, and mean obliquity of the ecliptic, namely, (a) those of STRUVE and PETERS and (b) those of the Paris Conference; thus leaving every one free to choose between them. Second, Professor SIMON NEWCOMB's tables of the Sun, Mercury and Venus, and Dr. G. W. HILL's tables of Jupiter and Saturn have been substituted for the tables which were used in the *American Ephemeris* for the years prior to 1900. Third, the consolidation of the 175 additional fixed stars with the regular list, which was first effected in the volume for 1900, has been continued. Fourth, to facilitate the computation of ephemerides of stars, a page has been added giving for every tenth day of the year both the Besselian and the Independent star-numbers, exclusive of all short period terms. Fifth, the data for the illuminated disks of planets have been somewhat extended, and the accuracy of the diagrams of the motions of the satellites of Jupiter, Saturn and Neptune have been considerably improved. Sixth, the explanations of the arrangement, use, and construction of the *American Ephemeris* have been very carefully revised and rewritten. Seventh, as the star-numbers, star-places, and other data involving precession, nutation, aberration and mean obliquity of the ecliptic are not given according to the constants of STRUVE and PETERS in the *American Ephemeris* for 1900, the values for that year have been appended to the present volume in order to prevent a break in the continuity of the published data.

The Ephemeris is divided into three parts, as follows:—

Part I, *Ephemeris for the Meridian of Greenwich*, which gives the ephemerides of the Sun and Moon, the geocentric and heliocentric positions of the major planets, the Sun's co-ordinates, and other fundamental astronomical data, for equidistant intervals of Greenwich mean time.

Part II, *Ephemeris for the Meridian of Washington*, which gives the ephemerides of the fixed stars, Sun, Moon, and major planets for transit over the meridian of the new Naval Observatory, Washington. The mean places of the fixed stars and the data for their reduction are also included in this part.

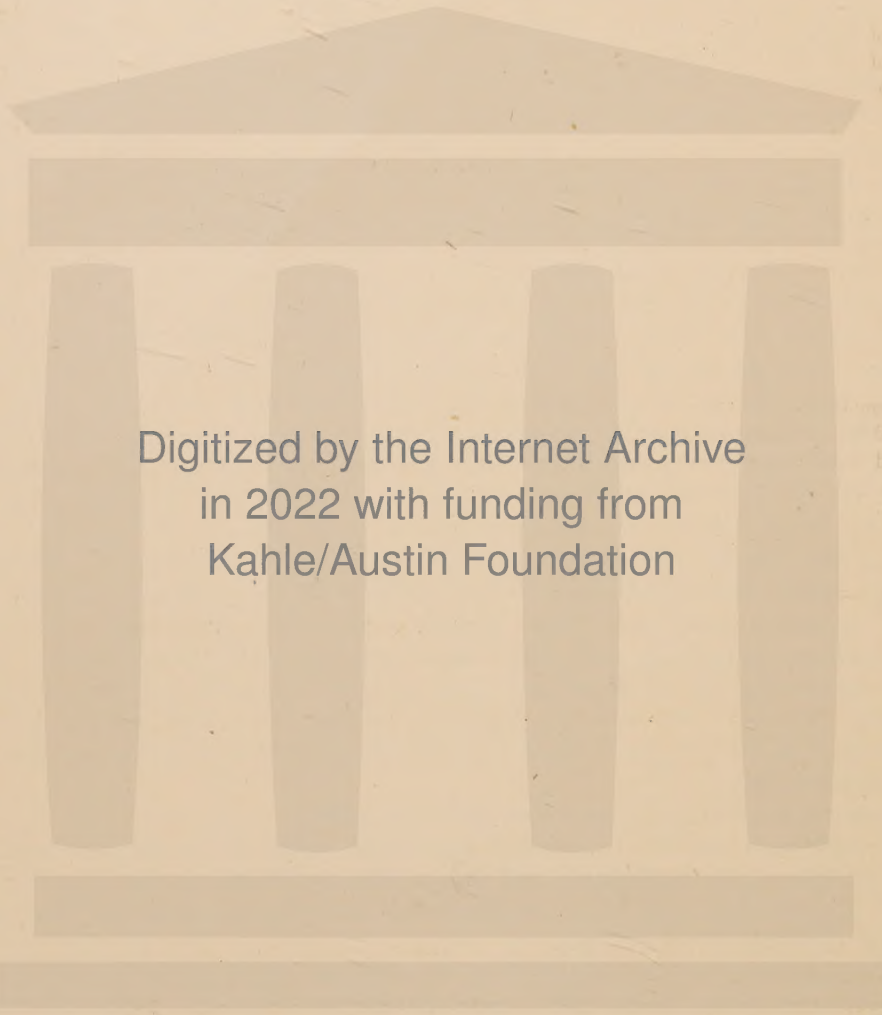
Part III, *Phenomena*, which contains predictions of phenomena to be observed, with data for their computation. Washington mean time for the meridian of the new Naval Observatory is used throughout this part except in a few cases, notably those of eclipses, where Greenwich mean time seems more convenient.

WM. HARKNESS,

Professor of Mathematics, U. S. Navy,
Director Nautical Almanac.

WASHINGTON, February, 1899.

EPH 1901—III



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CONTENTS.

Corrections	Page vi
Chronological Eras and Cycles	vii
Symbols and Abbreviations	viii
PART I— <i>EPHEMERIS FOR THE MERIDIAN OF GREENWICH.</i>	
Ephemeris of the Sun	I—III
Ephemeris of the Moon	IV—XII
Phases of the Moon	XII
Lunar Distances	XIII—XVIII
Geocentric Ephemerides of the Planets Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune	
Heliocentric Ephemerides of the Planets Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune	218
Sun's Co-ordinates	250
Moon's Longitude and Latitude	272
Moon's Equator, Mean Longitude, etc.	280
Moon's Libration; Sun's Aberration and Horizontal Parallax	284
Precession, Nutation, Obliquity, etc.	285
Nutation, Terms of Short Period in the	286
PART II— <i>EPHEMERIS FOR THE MERIDIAN OF WASHINGTON.</i>	
BESSEL'S Formulæ for Star-Reductions, Constants of <i>Struve</i> and <i>Peters</i>	287
Besselian and Independent Star-Numbers, " " " "	290
Besselian and Independent Star Numbers, exclusive of short period terms, for every tenth sidereal day	291
Mean Places of Standard Stars for 1901.0	303
Apparent Places of Four Circumpolar Stars	304
Apparent Places of remaining Standard Stars	312
Solar Ephemeris	324
Moon-Culminations	400
Transit-Ephemerides of the Planets Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune	408
PART III— <i>PHENOMENA.</i>	
Eclipses	416
Moon's Phases, Apogee, Perigee, and Greatest Libration	434
Mean Places of Stars Occulted by the Moon	440
Elements for the Prediction of Occultations	441
Occultations Visible at Washington	445
Disks of Mercury, Venus and Mars	475
Satellites of Mars, Jupiter, Saturn, Uranus and Neptune	477
Phenomena, Planetary Configurations	480
BESSEL'S Formulæ for Star-reductions, Constants of Paris Conference, May, 1896	514
Precession, Nutation, Obliquity, etc. " " " "	516
Besselian and Independent Star-Numbers, Constants of Paris Conference, May, 1896	517
Apparent Places of Four Circumpolar Stars " " " "	518
Apparent Places of Twenty-five Standard Stars, Constants of Paris Conference, May, 1896	530
Positions of Observatories	542
On the Arrangement and Use of <i>The American Ephemeris and Nautical Almanac</i>	547
APPENDIX.	
On the Construction of <i>The American Ephemeris and Nautical Almanac</i> for 1901	553
TABLES.	
Table I.—Correction of Lunar Distances for Second Differences in Moon's Motion	579
Table II.—Reduction of Sidereal to Mean Solar Time	585
Table III.—Reduction of Mean Solar to Sidereal Time	588
Table IV.—Latitude by Observation of the Altitude of Polaris	591
SUPPLEMENT.	
Apparent Places of Stars, Star-numbers, etc., for 1900, Constants of <i>Struve</i> and <i>Peters</i>	593
EPH 1901—V	

CORRECTIONS.

Ephemeris, 1899.

Page.			
56,	April 27, eighth column,	for 65 27 ^s	read 65 77 ^s
89,	Heading of column,	for XIX ^h	read XXI ^h
129,	Aug. 21, Equation of time,	for 2 ^m 0.86 ^s	read 3 ^m 0.86 ^s
152,	Moon's R. A. 9 ^d 7 ^h ,	for 14 ^h 22 ^m 33. 8 ^s	read 14 ^h 22 ^m 33.28 ^s
238,	Decl. of Jupiter, May 11,	for + 11 ^o 18' 51.9"	read - 11 ^o 18' 51.9"
293,	Decl. of δ Hydri,	for - 96 ^o 7' 7.94"	read - 69 ^o 7' 7.94"
299,	R. A. of α Herculis,	for 16 ^h 57 ^m 51.587 ^s	read 16 ^h 57 ^m 52.587 ^s
299,	Twelfth line from bottom,	for μ Sagittarii	read μ Sagittarii
315,	Bottom line, right-hand column,	for + 0.7	read - 0.7
317,	Bottom line, decl. of β Arietis,	for 89.7"	read 79.7"
322,	Bottom line, R. A. of α Camelop.,	for + .10	read - .10
377,	R. A. of Sun, Jan. 21,	for 20 ^h 15 ^m 59.46 ^s	read 20 ^h 14 ^m 59.46 ^s
397,	Mean Time of Transit, Jan. 7,	for 21 ^h 14.8 ^m	read 21 ^h 13.8 ^m
—,	Eclipse chart, June 7, 1899,	for Japan	read Saghalien
417,	In column New Moon, insert, Dec. 31 ^d 20 ^h 43.6 ^m		
418,	Change χ^1 and χ^2 Tauri to κ^1 and κ^2 Tauri on pp. 418, 449, 452, and 454.		
419,	R. A. of 2 Geminorum,	for 5 ^h 59 ^m 39 253 ^s	read 6 ^h 0 ^m 39 253 ^s
421,	Ann. prop. motion in decl. of 51 Aquarii,	for - 0 002"	read - 0 020"
464,	Satellite I,	for Jan. 28	read Jan. 29
517,	Second line from bottom,	for 85 ^o 57.7'	read 285 ^o 57.7'
520,	Second line from bottom, Emerson,	for 8.78518 <i>n</i>	read 9.78518 <i>n</i>
524,	Fourth line from top,	for $\rho \sin \phi' \cos a$	read $\rho \sin \phi' \cos d$

Ephemeris, 1900. (First Edition only.)

—,	Preface, sixth line from top,	for 9.2231"	read 9.2240"
289,	Seventh line from bottom,	after ($G + a_0$)	insert $\tan \delta_0$
308,	Seventeenth line from bottom, a^2 Capricorni,	for - 12 ^o 51' 17.01"	read - 12 ^o 51' 17.50"
308,	Seventeenth line from bottom, a^2 Capricorni,	for + 10.977	read + 10.963
385,	a^2 Capricorni,		add - 0.5" to all the Declinations.
434,	For second line,		read 19 ^o 33.3'; 112 ^o 58.4'; 19 ^o 50.3';
438,	Change χ^1 and χ^2 Tauri to κ^1 and κ^2 Tauri on pp. 438, 442, 445, 447, 449, 456, 459, 461, 464, 466, 468, 470, and 472.		111 ^o 46.7'; 20 ^o 2.6'; 110 ^o 45.6'; 0 ^m 37.7 ^s
438,	Twentieth line, decl. of δ Arietis,	for + 19 ^o 26' 55.20"	read + 19 ^o 20' 55.20"
438,	Twenty-third line, decl. of 65 Arietis,	for + 20 ^o 20' 59.54"	read + 20 ^o 26' 55.22"
439,	Fourth line from bottom, decl. of 34 Sextantis,	for + 5 ^o 6' 19.62"	read + 4 ^o 6' 19.62"
440,	R. A. of λ Libræ,	for 15 ^h 47 ^m 33.614 ^s	read 15 ^h 47 ^m 31.614 ^s
440,	Thirty-sixth line, decl. of 58 Ophiuchi,	for - 21 ^o 58' 5.11"	read - 21 ^o 38' 5.11"
441,	R. A. of 44 Aquarii,	for 22 ^h 12 ^m 53.241 ^s	read 22 ^h 11 ^m 53.241 ^s
442,	Thirty-first line, decl. of δ Arietis,	for + 19 ^o 27.0'	read + 19 ^o 21.0'
442,	Thirty-fifth line, decl. of 65 Arietis,	for + 20 ^o 21.1'	read + 20 ^o 27.1'
463,	Forty-fifth line, decl. of δ Arietis,	for + 17 ^o 21.2'	read + 19 ^o 21.2'
470,	Eleventh line, decl. of δ Arietis,	for + 19 ^o 27.2'	read + 19 ^o 21.2'
471,	Bottom line, decl. of δ Arietis,	for + 19 ^o 27.2'	read + 19 ^o 21.2'
500,	November 8,	for 17 ^h 15 ^m	read 16 ^h 54 ^m
500,	November 15,	for 21 ^h 41 ^m	read 21 ^h 21 ^m
507,	Position Angle of Apsis, Dec. 16,	for 274.2 ^o	read 264.2 ^o
529,	Ninth line from bottom,	for 416	read 434
536,	Fifth line from bottom,	for - $\chi' \tau$	read = $\chi' \tau$
541,	Obliquity,	for 20 ^o 27' 8.26"	read 23 ^o 27' 8.26"
541,	Second line from bottom,	for 16' 59.63"	read 15' 59.63"
545,		for 0 ^m 43 922 ^s	read 0 ^m 42 922 ^s
547,		for 3 ^m 34 248 ^s	read 3 ^m 34.284 ^s

CHRONOLOGICAL ERAS AND CYCLES.

CHRONOLOGICAL ERAS.

THE YEAR 1901, WHICH COMPRISES THE LATTER PART OF THE 125TH AND THE BEGINNING OF THE 126TH YEAR OF THE INDEPENDENCE OF THE UNITED STATES OF AMERICA, CORRESPONDS TO—

The year 6614 of the Julian Period;

- “ 7409-7410 of the Byzantine era, the year 7410 commencing on September 1;
- “ 5661-5662 of the Jewish era, the year 5662 commencing on September 14, or, more exactly, at sunset on September 13;
- “ 2654 since the foundation of Rome, according to VARRO;
- “ 2648 since the beginning of the era of NABONASSAR, which has been assigned to Wednesday, the 26th of February of the 3967th year of the Julian Period; corresponding, in the notation of chronologists, to the 747th; and, in the notation of astronomers, to the 746th year before the birth of CHRIST;
- “ 2677 of the Olympiads, or the first year of the 670th Olympiad commencing in July, 1901, if we fix the era of the Olympiads at $775\frac{1}{2}$ years before CHRIST, or near the beginning of July of the year 3938 of the Julian Period;
- “ 2212 of the Grecian era, or the era of the SELEUCIDÆ, which began near the vernal equinox of the year, — 311 = B. C. 312, = 4402 of the Julian Period;
- “ 1617 of the era of DIOCLETIAN;
- “ 2561 of the Japanese era and to the 34th year of the period entitled “Meiji.”

The year 1319 of the Mohammedan era, or the era of the Hegira, begins on the 20th day of April, 1901.

The first day of January of the year 1901 is the 2,415,386th day since the commencement of the Julian Period.

CHRONOLOGICAL CYCLES.

Dominical Letter	F	Solar Cycle	6
Epact	10	Roman Indiction	14
Lunar Cycle or Golden Number	2	Julian Period	6614

SYMBOLS AND ABBREVIATIONS.

SIGNS OF THE PLANETS, ETC.

☉	The Sun.	♂	Mars.
☾	The Moon.	♃	Jupiter.
☿	Mercury.	♄	Saturn.
♀	Venus.	♅	Uranus.
♁	The Earth.	♆	Neptune.

SIGNS OF THE ZODIAC.

Spring Signs.	{	1.	♈	Aries.	Autumn Signs.	{	7.	♎	Libra.
		2.	♉	Taurus.			8.	♏	Scorpius.
		3.	♊	Gemini.			9.	♐	Sagittarius.
Summer Signs.	{	4.	♋	Cancer.	Winter Signs.	{	10.	♑	Capricornus.
		5.	♌	Leo.			11.	♒	Aquarius.
		6.	♍	Virgo.			12.	♓	Pisces.

ASPECTS.

- ♌ Conjunction, or having the same Longitude or Right Ascension.
- ☐ Quadrature, or differing $\pm 90^\circ$ in Longitude or Right Ascension.
- ♌ Opposition, or differing 180° in Longitude or Right Ascension.

ABBREVIATIONS.

♈	Ascending Node.	°	Degrees.
♏	Descending Node.	'	Minutes of Arc.
N.	North.	"	Seconds of Arc.
S.	South.	h	Hours.
E.	East.	m	Minutes of Time.
W.	West.	s	Seconds of Time.

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PART I

ASTRONOMICAL EPHEMERIS

FOR THE

MERIDIAN OF GREENWICH

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S					Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.			
		h m s	s	° ' "	"	' "	s	m s	s
Tues.	1	18 45 20.71	11.044	S. 23 2 29.1	+11.95	16 17.13	71.01	3 34.07	1.185
Wed.	2	18 49 45.62	11.030	22 57 28.3	13.11	16 17.13	70.97	4 2.35	1.169
Thur.	3	18 54 10.18	11.015	22 52 0.1	14.26	16 17.12	70.92	4 30.28	1.154
Frid.	4	18 58 34.35	10.998	22 46 4.6	+15.39	16 17.11	70.87	4 57.81	1.138
Sat.	5	19 2 58.11	10.981	22 39 42.0	16.51	16 17.09	70.81	5 24.94	1.121
SUN.	6	19 7 21.45	10.963	22 32 52.4	17.63	16 17.07	70.75	5 51.65	1.103
Mon.	7	19 11 44.34	10.945	22 25 36.1	+18.74	16 17.05	70.68	6 17.90	1.083
Tues.	8	19 16 6.74	10.925	22 17 53.2	19.84	16 17.02	70.61	6 43.68	1.063
Wed.	9	19 20 28.64	10.902	22 9 44.0	20.94	16 16.99	70.54	7 8.95	1.042
Thur.	10	19 24 50.02	10.879	22 1 8.7	+22.02	16 16.95	70.47	7 33.71	1.020
Frid.	11	19 29 10.84	10.856	21 52 7.5	23.09	16 16.91	70.39	7 57.91	0.997
Sat.	12	19 33 31.10	10.832	21 42 40.7	24.15	16 16.86	70.31	8 21.55	0.972
SUN.	13	19 37 50.77	10.807	21 32 48.7	+25.20	16 16.81	70.23	8 44.60	0.947
Mon.	14	19 42 9.82	10.781	21 22 31.5	26.24	16 16.75	70.14	9 7.02	0.921
Tues.	15	19 46 28.24	10.754	21 11 49.7	27.26	16 16.69	70.05	9 28.83	0.894
Wed.	16	19 50 46.00	10.726	21 0 43.3	+28.27	16 16.62	69.96	9 49.97	0.867
Thur.	17	19 55 3.08	10.698	20 49 12.7	29.27	16 16.54	69.86	10 10.44	0.838
Frid.	18	19 59 19.47	10.669	20 37 18.6	30.25	16 16.46	69.76	10 30.22	0.809
Sat.	19	20 3 35.14	10.638	20 25 0.9	+31.23	16 16.38	69.66	10 49.29	0.779
SUN.	20	20 7 50.09	10.607	20 12 20.0	32.19	16 16.29	69.56	11 7.63	0.748
Mon.	21	20 12 4.28	10.576	19 59 16.5	33.12	16 16.20	69.46	11 25.21	0.717
Tues.	22	20 16 17.71	10.543	19 45 50.6	+34.04	16 16.10	69.35	11 42.03	0.685
Wed.	23	20 20 30.35	10.510	19 32 2.7	34.95	16 16.00	69.25	11 58.08	0.652
Thur.	24	20 24 42.19	10.476	19 17 53.2	35.84	16 15.90	69.14	12 13.32	0.618
Frid.	25	20 28 53.22	10.442	19 3 22.5	+36.72	16 15.79	69.03	12 27.75	0.584
Sat.	26	20 33 3.42	10.408	18 48 30.9	37.58	16 15.67	68.92	12 41.37	0.550
SUN.	27	20 37 12.81	10.373	18 33 18.9	38.43	16 15.55	68.81	12 54.16	0.516
Mon.	28	20 41 21.35	10.338	18 17 46.8	+39.26	16 15.42	68.69	13 6.12	0.481
Tues.	29	20 45 29.05	10.303	18 1 55.1	40.07	16 15.29	68.58	13 17.24	0.447
Wed.	30	20 49 35.92	10.268	17 45 44.0	40.86	16 15.15	68.46	13 27.53	0.412
Thur.	31	20 53 41.96	10.233	17 29 14.2	41.64	16 15.01	68.35	13 36.99	0.377
Frid.	32	20 57 47.15	10.198	S. 17 12 25.7	+42.40	16 14.87	68.23	13 45.60	0.342

NOTE.—The mean time of semidiameter passing may be found by subtracting 0.19 from the sidereal time.
The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ' "	"	m s	s	h m s
Tues.	1	18 45 20.05	+ 11.041	S. 23 2 29.8	+ 11.95	3 34.00	- 1.185	18 41 46.05
Wed.	2	18 49 44.88	11.027	22 57 29.2	13.10	4 2.27	1.169	18 45 42.61
Thur.	3	18 54 9.35	11.012	22 52 1.2	14.24	4 30.19	1.154	18 49 39.16
Frid.	4	18 58 33.44	+ 10.995	22 46 5.9	+ 15.37	4 57.72	- 1.138	18 53 35.72
Sat.	5	19 2 57.12	* 10.978	22 39 43.5	16.49	5 24.84	1.121	18 57 32.28
SUN.	6	19 7 20.38	10.960	22 32 54.1	17.61	5 51.55	1.103	19 1 28.84
Mon.	7	19 11 43.19	+ 10.942	22 25 38.1	+ 18.72	6 17.79	- 1.083	19 5 25.40
Tues.	8	19 16 5.52	10.922	22 17 55.4	19.82	6 43.56	1.063	19 9 21.95
Wed.	9	19 20 27.34	10.899	22 9 46.5	20.92	7 8.83	1.042	19 13 18.51
Thur.	10	19 24 48.65	+ 10.876	22 1 11.5	+ 22.00	7 33.58	- 1.020	19 17 15.07
Frid.	11	19 29 9.40	10.853	21 52 10.6	23.07	7 57.78	0.997	19 21 11.62
Sat.	12	19 33 29.59	10.829	21 42 44.1	24.13	8 21.41	0.972	19 25 8.18
SUN.	13	19 37 49.19	+ 10.804	21 32 52.4	+ 25.18	8 44.46	- 0.947	19 29 4.74
Mon.	14	19 42 8.18	10.778	21 22 35.5	26.22	9 6.88	0.921	19 33 1.29
Tues.	15	19 46 26.54	10.751	21 11 54.0	27.24	9 28.69	0.894	19 36 57.85
Wed.	16	19 50 44.24	+ 10.723	21 0 47.9	+ 28.25	9 49.83	- 0.867	19 40 54.41
Thur.	17	19 55 1.26	10.695	20 49 17.7	29.25	10 10.30	0.838	19 44 50.96
Frid.	18	19 59 17.60	10.666	20 37 23.9	30.23	10 30.08	0.809	19 48 47.52
Sat.	19	20 3 33.22	+ 10.636	20 25 6.5	+ 31.21	10 49.15	- 0.779	19 52 44.08
SUN.	20	20 7 48.12	10.605	20 12 26.0	32.17	11 7.49	0.748	19 56 40.63
Mon.	21	20 12 2.26	10.574	19 59 22.8	33.10	11 25.07	0.717	20 0 37.19
Tues.	22	20 16 15.65	+ 10.541	19 45 57.2	+ 34.02	11 41.90	- 0.685	20 4 33.75
Wed.	23	20 20 28.25	10.508	19 32 9.7	34.93	11 57.95	0.652	20 8 30.30
Thur.	24	20 24 40.05	10.475	19 18 0.5	35.82	12 13.19	0.618	20 12 26.86
Frid.	25	20 28 51.05	+ 10.441	19 3 30.1	+ 36.70	12 27.63	- 0.584	20 16 23.41
Sat.	26	20 33 1.22	10.407	18 48 38.9	37.56	12 41.25	0.550	20 20 19.97
SUN.	27	20 37 10.58	10.372	18 33 27.2	38.41	12 54.05	0.516	20 24 16.53
Mon.	28	20 41 19.10	+ 10.338	18 17 55.4	+ 39.24	13 6.02	- 0.481	20 28 13.08
Tues.	29	20 45 26.78	10.303	18 2 4.0	40.05	13 17.14	0.447	20 32 9.64
Wed.	30	20 49 33.63	10.268	17 45 53.2	40.84	13 27.44	0.412	20 36 6.19
Thur.	31	20 53 39.65	10.233	17 29 23.6	41.62	13 36.90	0.377	20 40 2.75
Frid.	32	20 57 44.82	+ 10.198	S. 17 12 35.4	+ 42.38	13 45.52	- 0.342	20 43 59.30

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

Diff. for 1 Hour,
+ 9^s.8565.
(Table III.)

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.	
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.				
		λ	λ'						
		$^{\circ}$ ' "	' "	"	"			h m s	
1	1	280 25 28.5	25 13.0	152.86	— 0.07	9.9926404	— 1.3	5 17 21.82	
2	2	281 26 37.5	26 21.7	152.86	0.20	9.9926380	— 0.3	5 13 25.90	
3	3	282 27 46.2	27 30.3	152.86	0.33	9.9926384	+ 0.8	5 9 29.99	
4	4	283 28 54.9	28 38.7	152.85	— 0.44	9.9926417	+ 2.0	5 5 34.08	
5	5	284 30 3.3	29 47.0	152.85	0.53	9.9926479	3.2	5 1 38.17	
6	6	285 31 11.7	30 55.2	152.85	0.61	9.9926570	4.4	4 57 42.26	
7	7	286 32 20.0	32 3.4	152.84	— 0.66	9.9926689	+ 5.5	4 53 46.34	
8	8	287 33 28.2	33 11.4	152.84	0.67	9.9926836	6.7	4 49 50.43	
9	9	288 34 36.5	34 19.5	152.84	0.65	9.9927010	7.8	4 45 54.52	
10	10	289 35 44.6	35 27.4	152.84	— 0.63	9.9927209	+ 8.8	4 41 58.61	
11	11	290 36 52.6	36 35.3	152.83	0.57	9.9927434	9.8	4 38 2.70	
12	12	291 38 0.6	37 43.1	152.83	0.47	9.9927682	10.8	4 34 6.79	
13	13	292 39 8.4	38 50.8	152.82	— 0.38	9.9927953	+11.7	4 30 10.88	
14	14	293 40 16.1	39 58.3	152.81	0.26	9.9928245	12.6	4 26 14.97	
15	15	294 41 23.5	41 5.5	152.80	— 0.13	9.9928558	13.4	4 22 19.06	
16	16	295 42 30.7	42 12.6	152.79	+ 0.01	9.9928890	+14.2	4 18 23.15	
17	17	296 43 37.6	43 19.3	152.78	0.14	9.9929240	15.0	4 14 27.24	
18	18	297 44 44.0	44 25.6	152.76	0.27	9.9929608	15.7	4 10 31.33	
19	19	298 45 50.0	45 31.4	152.74	+ 0.37	9.9929992	+16.3	4 6 35.41	
20	20	299 46 55.4	46 36.6	152.71	0.45	9.9930392	17.0	4 2 39.50	
21	21	300 48 0.1	47 41.2	152.68	0.51	9.9930806	17.6	3 58 43.59	
22	22	301 49 4.0	48 45.0	152.64	+ 0.53	9.9931235	+18.2	3 54 47.68	
23	23	302 50 7.0	49 47.8	152.60	0.51	9.9931679	18.8	3 50 51.77	
24	24	303 51 9.0	50 49.7	152.56	0.49	9.9932140	19.4	3 46 55.86	
25	25	304 52 10.0	51 50.5	152.52	+ 0.42	9.9932617	+20.2	3 42 59.95	
26	26	305 53 9.8	52 50.1	152.47	0.30	9.9933111	21.0	3 39 4.04	
27	27	306 54 8.3	53 48.6	152.42	0.19	9.9933625	21.8	3 35 8.13	
28	28	307 55 5.7	54 45.7	152.37	+ 0.08	9.9934159	+22.7	3 31 12.22	
29	29	308 56 1.7	55 41.6	152.31	— 0.05	9.9934715	23.6	3 27 16.31	
30	30	309 56 56.5	56 36.3	152.26	0.17	9.9935294	24.6	3 23 20.40	
31	31	310 57 50.0	57 29.6	152.20	0.29	9.9935896	25.6	3 19 24.49	
32	32	311 58 42.2	58 21.8	152.15	— 0.38	9.9936522	+26.6	3 15 28.58	

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0^d.0 of the Besselian fictitious year.

Diff. for 1 Hour,
—9^s.8296.
(Table II.)

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0^d.0 of the Besselian fictitious year.

Diff. for 1 Hour,
—9^s.8296.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	' "	' "	' "	"	' "	"	h m	m	d
1	16 8.2	16 6.3	59 6.6	- 0.49	58 59.8	- 0.65	9 11.1	+ 2.42	10.5
2	16 3.9	16 1.0	58 51.1	0.81	58 40.5	0.96	10 9.5	2.43	11.5
3	15 57.6	15 53.8	58 28.0	1.11	58 13.8	1.25	11 7.4	2.38	12.5
4	15 49.5	15 44.8	57 58.0	- 1.37	57 40.9	- 1.48	12 3.3	+ 2.27	13.5
5	15 39.8	15 34.6	57 22.6	1.55	57 3.5	1.61	12 56.2	2.14	14.5
6	15 29.3	15 24.0	56 44.0	1.63	56 24.4	1.62	13 45.9	2.00	15.5
7	15 18.7	15 13.6	56 5.1	- 1.58	55 46.3	- 1.52	14 32.5	+ 1.89	16.5
8	15 8.8	15 4.3	55 28.6	1.43	55 12.1	1.30	15 16.7	1.80	17.5
9	15 0.2	14 56.7	54 57.2	1.16	54 44.2	1.00	15 59.4	1.76	18.5
10	14 53.7	14 51.3	54 33.2	- 0.82	54 24.5	- 0.62	16 41.3	+ 1.75	19.5
11	14 49.7	14 48.6	54 18.3	- 0.41	54 14.6	- 0.20	17 23.5	1.77	20.5
12	14 48.3	14 48.8	54 13.5	+ 0.02	54 15.1	+ 0.24	18 6.5	1.83	21.5
13	14 50.0	14 51.8	54 19.4	+ 0.46	54 26.2	+ 0.68	18 51.4	+ 1.91	22.5
14	14 54.4	14 57.6	54 35.6	0.88	54 47.5	1.08	19 38.4	2.01	23.5
15	15 1.4	15 5.8	55 1.5	1.25	55 17.6	1.42	20 27.9	2.11	24.5
16	15 10.7	15 16.0	55 35.5	+ 1.55	55 54.9	+ 1.66	21 19.7	+ 2.20	25.5
17	15 21.5	15 27.3	56 15.4	1.74	56 36.7	1.79	22 13.2	2.25	26.5
18	15 33.2	15 39.1	56 58.3	1.80	57 19.9	1.78	23 7.5	2.26	27.5
19	15 44.8	15 50.3	57 41.0	+ 1.72	58 1.2	+ 1.63	0		28.5
20	15 55.5	16 0.2	58 20.1	1.50	58 37.3	1.35	0 1.8	+ 2.24	29.5
21	16 4.3	16 7.9	58 52.5	1.18	59 5.6	0.98	0 55.2	2.20	0.9
22	16 10.8	16 13.0	59 16.2	+ 0.78	59 24.4	+ 0.58	1 47.6	+ 2.16	1.9
23	16 14.5	16 15.4	59 30.0	+ 0.38	59 33.3	+ 0.18	2 39.2	2.14	2.9
24	16 15.7	16 15.4	59 34.3	0.00	59 33.3	- 0.17	3 30.5	2.15	3.9
25	16 14.6	16 13.3	59 30.2	- 0.32	59 25.6	- 0.45	4 22.3	+ 2.18	4.9
26	16 11.7	16 9.7	59 19.5	0.56	59 12.2	0.65	5 15.2	2.23	5.9
27	16 7.4	16 4.9	59 3.8	0.73	58 54.6	0.80	6 9.6	2.30	6.9
28	16 2.2	15 59.2	58 44.6	- 0.86	58 33.9	- 0.91	7 5.4	+ 2.35	7.9
29	15 56.2	15 53.0	58 22.7	0.96	58 10.9	1.00	8 2.1	2.37	8.9
30	15 49.6	15 46.2	57 58.6	1.05	57 45.8	1.09	8 58.7	2.34	9.9
31	15 42.5	15 38.8	57 32.4	1.13	57 18.7	1.17	9 54.1	2.26	10.9
32	15 34.9	15 30.9	57 4.4	- 1.20	56 49.8	- 1.23	10 47.2	+ 2.16	11.9

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 1.					THURSDAY 3.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	3 31 33.08	2.4738	N.19 38 12.3	5.371	0	5 31 22.26	2.4828	N.21 20 24.9	1.178
1	3 34 1.58	2.4762	19 43 30.7	5.242	1	5 33 51.16	2.4806	21 19 10.2	1.313
2	3 36 30.22	2.4783	19 48 41.3	5.113	2	5 36 19.93	2.4783	21 17 47.3	1.448
3	3 38 58.98	2.4803	19 53 44.2	4.984	3	5 38 48.56	2.4760	21 16 16.4	1.583
4	3 41 27.86	2.4823	19 58 39.4	4.854	4	5 41 17.05	2.4736	21 14 37.4	1.717
5	3 43 56.86	2.4843	20 3 26.7	4.723	5	5 43 45.39	2.4710	21 12 50.4	1.851
6	3 46 25.98	2.4863	20 8 6.1	4.591	6	5 46 13.57	2.4683	21 10 55.3	1.984
7	3 48 55.21	2.4880	20 12 37.6	4.459	7	5 48 41.59	2.4657	21 8 52.3	2.116
8	3 51 24.54	2.4897	20 17 1.2	4.327	8	5 51 9.45	2.4628	21 6 41.4	2.248
9	3 53 53.97	2.4913	20 21 16.9	4.194	9	5 53 37.13	2.4599	21 4 22.6	2.378
10	3 56 23.49	2.4928	20 25 24.5	4.060	10	5 56 4.64	2.4570	21 1 56.0	2.509
11	3 58 53.11	2.4943	20 29 24.1	3.926	11	5 58 31.97	2.4539	20 59 21.5	2.640
12	4 1 22.81	2.4957	20 33 15.6	3.792	12	6 0 59.11	2.4508	20 56 39.2	2.769
13	4 3 52.59	2.4970	20 36 59.1	3.657	13	6 3 26.06	2.4476	20 53 49.2	2.898
14	4 6 22.45	2.4983	20 40 34.4	3.521	14	6 5 52.82	2.4443	20 50 51.5	3.026
15	4 8 52.38	2.4993	20 44 1.6	3.385	15	6 8 19.37	2.4408	20 47 46.1	3.153
16	4 11 22.37	2.5003	20 47 20.6	3.248	16	6 10 45.72	2.4374	20 44 33.1	3.279
17	4 13 52.42	2.5013	20 50 31.4	3.112	17	6 13 11.86	2.4338	20 41 12.6	3.405
18	4 16 22.53	2.5022	20 53 34.0	2.975	18	6 15 37.78	2.4303	20 37 44.5	3.530
19	4 18 52.68	2.5029	20 56 28.4	2.838	19	6 18 3.49	2.4266	20 34 9.0	3.654
20	4 21 22.88	2.5036	20 59 14.5	2.700	20	6 20 28.97	2.4228	20 30 26.0	3.778
21	4 23 53.11	2.5042	21 1 52.4	2.562	21	6 22 54.23	2.4190	20 26 35.7	3.900
22	4 26 23.38	2.5048	21 4 22.0	2.423	22	6 25 19.25	2.4151	20 22 38.0	4.022
23	4 28 53.68	2.5051	N.21 6 43.2	2.284	23	6 27 44.04	2.4112	N.20 18 33.1	4.143
WEDNESDAY 2.					FRIDAY 4.				
0	4 31 23.99	2.5053	N.21 8 56.1	2.146	0	6 30 8.59	2.4071	N.20 14 20.9	4.263
1	4 33 54.32	2.5055	21 11 0.7	2.008	1	6 32 32.89	2.4030	20 10 1.6	4.382
2	4 36 24.65	2.5056	21 12 57.0	1.868	2	6 34 56.95	2.3989	20 5 35.1	4.500
3	4 38 54.99	2.5057	21 14 44.9	1.729	3	6 37 20.76	2.3947	20 1 1.6	4.617
4	4 41 25.33	2.5055	21 16 24.5	1.590	4	6 39 44.31	2.3903	19 56 21.1	4.733
5	4 43 55.65	2.5053	21 17 55.7	1.450	5	6 42 7.60	2.3860	19 51 33.6	4.849
6	4 46 25.96	2.5050	21 19 18.5	1.311	6	6 44 30.63	2.3817	19 46 39.2	4.963
7	4 48 56.25	2.5047	21 20 33.0	1.172	7	6 46 53.40	2.3773	19 41 38.0	5.076
8	4 51 26.52	2.5042	21 21 39.1	1.033	8	6 49 15.90	2.3728	19 36 30.1	5.188
9	4 53 56.75	2.5035	21 22 36.9	0.893	9	6 51 38.13	2.3682	19 31 15.4	5.300
10	4 56 26.94	2.5028	21 23 26.3	0.753	10	6 54 0.08	2.3636	19 25 54.1	5.410
11	4 58 57.09	2.5021	21 24 7.3	0.614	11	6 56 21.76	2.3590	19 20 26.2	5.519
12	5 1 27.19	2.5012	21 24 40.0	0.476	12	6 58 43.16	2.3543	19 14 51.8	5.628
13	5 3 57.23	2.5002	21 25 4.4	0.337	13	7 1 4.28	2.3496	19 9 10.9	5.735
14	5 6 27.21	2.4991	21 25 20.4	0.198	14	7 3 25.11	2.3448	19 3 23.6	5.842
15	5 8 57.12	2.4979	21 25 28.1	+0.058	15	7 5 45.66	2.3401	18 57 29.9	5.947
16	5 11 26.96	2.4966	21 25 27.4	-0.080	16	7 8 5.92	2.3352	18 51 30.0	6.050
17	5 13 56.71	2.4952	21 25 18.5	0.218	17	7 10 25.88	2.3303	18 45 23.9	6.153
18	5 16 26.38	2.4938	21 25 1.3	0.356	18	7 12 45.55	2.3253	18 39 11.6	6.255
19	5 18 55.96	2.4922	21 24 35.8	0.493	19	7 15 4.92	2.3204	18 32 53.3	6.356
20	5 21 25.44	2.4905	21 24 2.1	0.631	20	7 17 24.00	2.3155	18 26 28.9	6.456
21	5 23 54.82	2.4887	21 23 20.1	0.768	21	7 19 42.78	2.3105	18 19 58.6	6.554
22	5 26 24.08	2.4868	21 22 29.9	0.905	22	7 22 1.26	2.3054	18 13 22.4	6.652
23	5 28 53.23	2.4848	21 21 31.5	1.042	23	7 24 19.43	2.3003	18 6 40.4	6.748
24	5 31 22.26	2.4828	N.21 20 24.9	1.178	24	7 26 37.30	2.2953	N.17 59 52.7	6.843

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 5.					MONDAY 7.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	7 26 37.30	2.2953	N. 17 59 52.7	6.843	0	9 10 53.65	2.0548	N. 11 3 19.7	10.083
1	7 28 54.86	2.2902	17 52 59.3	6.938	1	9 12 56.80	2.0503	10 53 13.5	10.124
2	7 31 12.12	2.2851	17 46 0.2	7.031	2	9 14 59.69	2.0460	10 43 4.8	10.164
3	7 33 29.07	2.2799	17 38 55.6	7.122	3	9 17 2.32	2.0417	10 32 53.8	10.203
4	7 35 45.71	2.2748	17 31 45.6	7.213	4	9 19 4.69	2.0373	10 22 40.4	10.242
5	7 38 2.05	2.2697	17 24 30.1	7.303	5	9 21 6.80	2.0331	10 12 24.8	10.278
6	7 40 18.07	2.2644	17 17 9.3	7.391	6	9 23 8.66	2.0289	10 2 7.0	10.314
7	7 42 33.78	2.2593	17 9 43.2	7.478	7	9 25 10.27	2.0247	9 51 47.1	10.348
8	7 44 49.18	2.2541	17 2 11.9	7.564	8	9 27 11.62	2.0205	9 41 25.2	10.383
9	7 47 4.27	2.2489	16 54 35.5	7.649	9	9 29 12.73	2.0165	9 31 1.2	10.417
10	7 49 19.05	2.2437	16 46 54.0	7.733	10	9 31 13.60	2.0124	9 20 35.2	10.449
11	7 51 33.51	2.2384	16 39 7.5	7.816	11	9 33 14.22	2.0084	9 10 7.3	10.479
12	7 53 47.66	2.2333	16 31 16.1	7.898	12	9 35 14.61	2.0045	8 59 37.7	10.509
13	7 56 1.50	2.2280	16 23 19.8	7.978	13	9 37 14.76	2.0006	8 49 6.2	10.539
14	7 58 15.02	2.2228	16 15 18.8	8.056	14	9 39 14.68	1.9968	8 38 33.0	10.568
15	8 0 28.23	2.2176	16 7 13.1	8.134	15	9 41 14.37	1.9929	8 27 58.1	10.596
16	8 2 41.13	2.2124	15 59 2.7	8.212	16	9 43 13.83	1.9891	8 17 21.5	10.623
17	8 4 53.72	2.2072	15 50 47.7	8.288	17	9 45 13.06	1.9854	8 6 43.4	10.648
18	8 7 5.99	2.2019	15 42 28.2	8.363	18	9 47 12.08	1.9818	7 56 3.7	10.673
19	8 9 17.95	2.1968	15 34 4.2	8.436	19	9 49 10.88	1.9782	7 45 22.6	10.697
20	8 11 29.60	2.1916	15 25 35.9	8.508	20	9 51 9.46	1.9745	7 34 40.1	10.720
21	8 13 40.94	2.1864	15 17 3.3	8.579	21	9 53 7.82	1.9710	7 23 56.2	10.743
22	8 15 51.97	2.1813	15 8 26.4	8.650	22	9 55 5.98	1.9676	7 13 11.0	10.764
23	8 18 2.69	2.1761	N. 14 59 45.3	8.719	23	9 57 3.93	1.9642	N. 7 2 24.5	10.785
SUNDAY 6.					TUESDAY 8.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	8 20 13.10	2.1709	N. 14 51 0.1	8.787	0	9 59 1.68	1.9608	N. 6 51 36.8	10.804
1	8 22 23.20	2.1658	14 42 10.9	8.853	1	10 0 59.23	1.9575	6 40 48.0	10.824
2	8 24 33.00	2.1608	14 33 17.8	8.918	2	10 2 56.58	1.9543	6 29 58.0	10.842
3	8 26 42.49	2.1556	14 24 20.8	8.982	3	10 4 53.74	1.9511	6 19 6.9	10.859
4	8 28 51.67	2.1505	14 15 20.0	9.045	4	10 6 50.71	1.9479	6 8 14.9	10.875
5	8 31 0.55	2.1455	14 6 15.4	9.108	5	10 8 47.49	1.9448	5 57 21.9	10.892
6	8 33 9.13	2.1405	13 57 7.1	9.169	6	10 10 44.09	1.9418	5 46 27.9	10.907
7	8 35 17.41	2.1355	13 47 55.1	9.229	7	10 12 40.50	1.9388	5 35 33.1	10.920
8	8 37 25.39	2.1305	13 38 39.6	9.288	8	10 14 36.74	1.9358	5 24 37.5	10.933
9	8 39 33.07	2.1255	13 29 20.6	9.345	9	10 16 32.80	1.9329	5 13 41.1	10.946
10	8 41 40.45	2.1206	13 19 58.2	9.402	10	10 18 28.69	1.9301	5 2 44.0	10.957
11	8 43 47.54	2.1157	13 10 32.4	9.458	11	10 20 24.41	1.9273	4 51 46.3	10.968
12	8 45 54.33	2.1107	13 1 3.2	9.512	12	10 22 19.96	1.9246	4 40 47.9	10.978
13	8 48 0.83	2.1059	12 51 30.9	9.565	13	10 24 15.36	1.9219	4 29 48.9	10.988
14	8 50 7.04	2.1011	12 41 55.4	9.618	14	10 26 10.59	1.9193	4 18 49.4	10.996
15	8 52 12.96	2.0963	12 32 16.8	9.669	15	10 28 5.68	1.9168	4 7 49.4	11.004
16	8 54 18.60	2.0917	12 22 35.1	9.719	16	10 30 0.61	1.9143	3 56 48.9	11.012
17	8 56 23.96	2.0869	12 12 50.5	9.768	17	10 31 55.39	1.9118	3 45 48.0	11.018
18	8 58 29.03	2.0822	12 3 2.9	9.817	18	10 33 50.03	1.9094	3 34 46.7	11.024
19	9 0 33.82	2.0775	11 53 12.5	9.863	19	10 35 44.52	1.9071	3 23 45.1	11.029
20	9 2 38.33	2.0729	11 43 19.3	9.910	20	10 37 38.88	1.9048	3 12 43.2	11.033
21	9 4 42.57	2.0684	11 33 23.3	9.955	21	10 39 33.10	1.9026	3 1 41.1	11.037
22	9 6 46.54	2.0638	11 23 24.7	9.998	22	10 41 27.19	1.9004	2 50 38.8	11.040
23	9 8 50.23	2.0593	11 13 23.5	10.042	23	10 43 21.15	1.8983	2 39 36.3	11.042
24	9 10 53.65	2.0548	N. 11 3 19.7	10.083	24	10 45 14.99	1.8963	N. 2 28 33.8	11.043

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 9.					FRIDAY 11.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	10 45 14.99	1.8963	N. 2 28 33.8	11.043	0	12 14 58.52	1.8640	S. 6 11 11.3	10.383
1	10 47 8.70	1.8943	2 17 31.2	11.044	1	12 16 50.38	1.8646	6 21 33.5	10.357
2	10 49 2.30	1.8923	2 6 28.5	11.045	2	12 18 42.27	1.8653	6 31 54.1	10.328
3	10 50 55.78	1.8904	1 55 25.8	11.044	3	12 20 34.22	1.8662	6 42 12.9	10.298
4	10 52 49.15	1.8886	1 44 23.2	11.043	4	12 22 26.21	1.8670	6 52 29.9	10.269
5	10 54 42.41	1.8868	1 33 20.7	11.041	5	12 24 18.26	1.8679	7 2 45.2	10.239
6	10 56 35.57	1.8851	1 22 18.3	11.038	6	12 26 10.36	1.8688	7 12 58.6	10.208
7	10 58 28.62	1.8834	1 11 16.1	11.035	7	12 28 2.52	1.8698	7 23 10.2	10.178
8	11 0 21.58	1.8819	1 0 14.1	11.032	8	12 29 54.74	1.8708	7 33 19.9	10.146
9	11 2 14.45	1.8803	0 49 12.3	11.028	9	12 31 47.02	1.8720	7 43 27.7	10.114
10	11 4 7.22	1.8788	0 38 10.8	11.023	10	12 33 39.38	1.8732	7 53 33.6	10.081
11	11 5 59.90	1.8773	0 27 9.6	11.016	11	12 35 31.81	1.8744	8 3 37.4	10.047
12	11 7 52.50	1.8760	0 16 8.9	11.009	12	12 37 24.31	1.8757	8 13 39.2	10.013
13	11 9 45.02	1.8747	N. 0 5 8.5	11.002	13	12 39 16.89	1.8770	8 23 39.0	9.979
14	11 11 37.46	1.8734	S. 0 5 51.4	10.995	14	12 41 9.55	1.8783	8 33 36.7	9.944
15	11 13 29.83	1.8722	0 16 50.9	10.987	15	12 43 2.29	1.8798	8 43 32.3	9.908
16	11 15 22.12	1.8710	0 27 49.9	10.978	16	12 44 55.12	1.8813	8 53 25.7	9.872
17	11 17 14.35	1.8700	0 38 48.3	10.968	17	12 46 48.04	1.8828	9 3 16.9	9.835
18	11 19 6.52	1.8689	0 49 46.1	10.958	18	12 48 41.06	1.8844	9 13 5.9	9.798
19	11 20 58.62	1.8679	1 0 43.3	10.948	19	12 50 34.17	1.8860	9 22 52.7	9.761
20	11 22 50.67	1.8670	1 11 39.9	10.937	20	12 52 27.38	1.8877	9 32 37.2	9.723
21	11 24 42.66	1.8661	1 22 35.7	10.924	21	12 54 20.69	1.8893	9 42 19.4	9.683
22	11 26 34.60	1.8653	1 33 30.8	10.912	22	12 56 14.10	1.8912	9 51 59.2	9.643
23	11 28 26.50	1.8646	S. 1 44 25.1	10.898	23	12 58 7.63	1.8930	S. 10 1 36.6	9.603
THURSDAY 10.					SATURDAY 12.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	11 30 18.35	1.8638	S. 1 55 18.6	10.885	0	13 0 1.26	1.8948	S. 10 11 11.5	9.562
1	11 32 10.16	1.8633	2 6 11.3	10.871	1	13 1 55.01	1.8968	10 20 44.0	9.522
2	11 34 1.94	1.8627	2 17 3.1	10.856	2	13 3 48.87	1.8987	10 30 14.1	9.480
3	11 35 53.68	1.8621	2 27 54.0	10.840	3	13 5 42.85	1.9008	10 39 41.6	9.437
4	11 37 45.39	1.8617	2 38 43.9	10.824	4	13 7 36.96	1.9028	10 49 6.5	9.394
5	11 39 37.08	1.8613	2 49 32.9	10.808	5	13 9 31.19	1.9049	10 58 28.9	9.351
6	11 41 28.74	1.8608	3 0 20.8	10.790	6	13 11 25.55	1.9071	11 7 48.6	9.307
7	11 43 20.38	1.8606	3 11 7.7	10.773	7	13 13 20.04	1.9093	11 17 5.7	9.263
8	11 45 12.01	1.8603	3 21 53.5	10.754	8	13 15 14.66	1.9115	11 26 20.1	9.217
9	11 47 3.62	1.8601	3 32 38.2	10.735	9	13 17 9.42	1.9138	11 35 31.7	9.171
10	11 48 55.22	1.8600	3 43 21.7	10.716	10	13 19 4.32	1.9162	11 44 40.6	9.125
11	11 50 46.82	1.8600	3 54 4.1	10.696	11	13 20 59.36	1.9186	11 53 46.7	9.078
12	11 52 38.42	1.8599	4 4 45.2	10.675	12	13 22 54.55	1.9210	12 2 49.9	9.030
13	11 54 30.01	1.8599	4 15 25.1	10.654	13	13 24 49.88	1.9234	12 11 50.3	8.982
14	11 56 21.61	1.8601	4 26 3.7	10.633	14	13 26 45.36	1.9259	12 20 47.7	8.933
15	11 58 13.22	1.8602	4 36 41.0	10.610	15	13 28 40.99	1.9285	12 29 42.2	8.883
16	12 0 4.83	1.8603	4 47 16.9	10.587	16	13 30 36.78	1.9311	12 38 33.7	8.833
17	12 1 56.46	1.8607	4 57 51.4	10.563	17	13 32 32.72	1.9338	12 47 22.2	8.783
18	12 3 48.11	1.8609	5 8 24.5	10.539	18	13 34 28.83	1.9365	12 56 7.7	8.732
19	12 5 39.77	1.8613	5 18 56.1	10.515	19	13 36 25.10	1.9392	13 4 50.0	8.679
20	12 7 31.46	1.8618	5 29 26.3	10.490	20	13 38 21.53	1.9419	13 13 29.2	8.628
21	12 9 23.18	1.8622	5 39 54.9	10.464	21	13 40 18.13	1.9448	13 22 5.3	8.575
22	12 11 14.92	1.8627	5 50 22.0	10.438	22	13 42 14.90	1.9475	13 30 38.2	8.521
23	12 13 6.70	1.8633	6 0 47.5	10.411	23	13 44 11.84	1.9504	13 39 7.8	8.467
24	12 14 58.52	1.8640	S. 6 11 11.3	10.383	24	13 46 8.95	1.9533	S. 13 47 34.2	8.413

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 13.					TUESDAY 15.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	13 46 8.95	1.9533	S. 13 47 34.2	8.413	0	15 23 52.03	2.1263	S. 19 15 40.8	4.998
1	13 48 6.24	1.9563	13 55 57.3	8.357	1	15 25 59.73	2.1303	19 20 38.0	4.909
2	13 50 3.71	1.9593	14 4 17.0	8.300	2	15 28 7.67	2.1343	19 25 29.9	4.821
3	13 52 1.36	1.9624	14 12 33.3	8.243	3	15 30 15.85	2.1383	19 30 16.5	4.731
4	13 53 59.20	1.9655	14 20 46.2	8.186	4	15 32 24.26	2.1422	19 34 57.6	4.640
5	13 55 57.22	1.9686	14 28 55.6	8.128	5	15 34 32.91	2.1461	19 39 33.3	4.550
6	13 57 55.43	1.9718	14 37 1.6	8.070	6	15 36 41.79	2.1499	19 44 3.6	4.458
7	13 59 53.83	1.9749	14 45 4.0	8.010	7	15 38 50.90	2.1538	19 48 28.3	4.366
8	14 1 52.42	1.9781	14 53 2.8	7.950	8	15 41 0.25	2.1578	19 52 47.5	4.273
9	14 3 51.20	1.9813	15 0 58.0	7.889	9	15 43 9.84	2.1618	19 57 1.1	4.179
10	14 5 50.18	1.9847	15 8 49.5	7.828	10	15 45 19.66	2.1656	20 1 9.0	4.085
11	14 7 49.36	1.9880	15 16 37.4	7.767	11	15 47 29.71	2.1694	20 5 11.3	3.990
12	14 9 48.74	1.9913	15 24 21.5	7.703	12	15 49 39.99	2.1733	20 9 7.8	3.894
13	14 11 48.32	1.9947	15 32 1.8	7.640	13	15 51 50.51	2.1772	20 12 58.6	3.798
14	14 13 48.10	1.9981	15 39 38.3	7.577	14	15 54 1.25	2.1809	20 16 43.6	3.701
15	14 15 48.09	2.0016	15 47 11.0	7.513	15	15 56 12.22	2.1847	20 20 22.7	3.603
16	14 17 48.29	2.0050	15 54 39.8	7.447	16	15 58 23.42	2.1886	20 23 55.9	3.504
17	14 19 48.69	2.0085	16 2 4.6	7.381	17	16 0 34.85	2.1924	20 27 23.2	3.405
18	14 21 49.31	2.0121	16 9 25.5	7.315	18	16 2 46.51	2.1962	20 30 44.5	3.306
19	14 23 50.14	2.0156	16 16 42.4	7.248	19	16 4 58.39	2.1998	20 33 59.9	3.206
20	14 25 51.18	2.0192	16 23 55.2	7.179	20	16 7 10.49	2.2035	20 37 9.2	3.104
21	14 27 52.44	2.0228	16 31 3.9	7.111	21	16 9 22.81	2.2072	20 40 12.4	3.003
22	14 29 53.92	2.0264	16 38 8.5	7.042	22	16 11 35.35	2.2108	20 43 9.5	2.900
23	14 31 55.61	2.0300	S. 16 45 8.9	6.972	23	16 13 48.11	2.2144	S. 20 46 0.4	2.797
MONDAY 14.					WEDNESDAY 16.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	14 33 57.52	2.0337	S. 16 52 5.1	6.901	0	16 16 1.08	2.2180	S. 20 48 45.1	2.693
1	14 35 59.65	2.0374	16 58 57.0	6.830	1	16 18 14.27	2.2217	20 51 23.6	2.589
2	14 38 2.01	2.0412	17 5 44.7	6.758	2	16 20 27.68	2.2253	20 53 55.8	2.484
3	14 40 4.59	2.0449	17 12 28.0	6.685	3	16 22 41.30	2.2287	20 56 21.7	2.379
4	14 42 7.40	2.0487	17 19 6.9	6.612	4	16 24 55.12	2.2322	20 58 41.3	2.273
5	14 44 10.43	2.0524	17 25 41.4	6.538	5	16 27 9.16	2.2357	21 0 54.5	2.167
6	14 46 13.69	2.0562	17 32 11.4	6.463	6	16 29 23.40	2.2390	21 3 1.3	2.059
7	14 48 17.17	2.0600	17 38 36.9	6.388	7	16 31 37.84	2.2423	21 5 1.6	1.951
8	14 50 20.89	2.0638	17 44 57.9	6.312	8	16 33 52.48	2.2458	21 6 55.4	1.843
9	14 52 24.83	2.0676	17 51 14.3	6.234	9	16 36 7.33	2.2491	21 8 42.7	1.734
10	14 54 29.00	2.0715	17 57 26.0	6.157	10	16 38 22.37	2.2523	21 10 23.5	1.624
11	14 56 33.41	2.0754	18 3 33.1	6.079	11	16 40 37.60	2.2554	21 11 57.6	1.513
12	14 58 38.05	2.0793	18 9 35.5	6.000	12	16 42 53.02	2.2587	21 13 25.1	1.403
13	15 0 42.92	2.0832	18 15 33.1	5.920	13	16 45 8.64	2.2618	21 14 46.0	1.293
14	15 2 48.03	2.0871	18 21 25.9	5.840	14	16 47 24.44	2.2649	21 16 0.2	1.181
15	15 4 53.37	2.0910	18 27 13.9	5.759	15	16 49 40.43	2.2679	21 17 7.7	1.068
16	15 6 58.95	2.0949	18 32 57.0	5.677	16	16 51 56.59	2.2709	21 18 8.4	0.956
17	15 9 4.76	2.0988	18 38 35.1	5.594	17	16 54 12.94	2.2739	21 19 2.4	0.843
18	15 11 10.80	2.1027	18 44 8.3	5.512	18	16 56 29.46	2.2768	21 19 49.6	0.729
19	15 13 17.08	2.1067	18 49 36.5	5.428	19	16 58 46.16	2.2798	21 20 29.9	0.614
20	15 15 23.60	2.1106	18 54 59.6	5.343	20	17 1 3.03	2.2826	21 21 3.3	0.500
21	15 17 30.35	2.1145	19 0 17.6	5.258	21	17 3 20.07	2.2853	21 21 29.9	0.386
22	15 19 37.34	2.1185	19 5 30.5	5.173	22	17 5 37.27	2.2880	21 21 49.6	0.270
23	15 21 44.57	2.1224	19 10 38.3	5.086	23	17 7 54.63	2.2907	21 22 2.3	0.154
24	15 23 52.03	2.1263	S. 19 15 40.8	4.998	24	17 10 12.15	2.2933	S. 21 22 8.1	-0.038

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 17.					SATURDAY 19.				
	<small>h m s</small>	<small>s</small>	<small>° ' "</small>	<small>"</small>		<small>h m s</small>	<small>s</small>	<small>° ' "</small>	<small>"</small>
0	17 10 12.15	2.2933	S. 21 22 8.1	-0.038	0	19 2 10.80	2.3491	S. 19 5 50.0	5.725
1	17 12 29.82	2.2958	21 22 6.9	+0.078	1	19 4 31.74	2.3488	19 0 3.0	5.813
2	17 14 47.65	2.2984	21 21 58.7	0.196	2	19 6 52.65	2.3483	18 54 8.9	5.959
3	17 17 5.63	2.3008	21 21 43.4	0.313	3	19 9 13.54	2.3480	18 48 7.9	6.075
4	17 19 23.75	2.3033	21 21 21.1	0.431	4	19 11 34.41	2.3476	18 41 59.9	6.191
5	17 21 42.02	2.3056	21 20 51.7	0.549	5	19 13 55.25	2.3471	18 35 45.0	6.306
6	17 24 0.42	2.3078	21 20 15.2	0.668	6	19 16 16.06	2.3465	18 29 23.2	6.420
7	17 26 18.96	2.3100	21 19 31.6	0.786	7	19 18 36.83	2.3459	18 22 54.6	6.534
8	17 28 37.62	2.3122	21 18 40.9	0.904	8	19 20 57.57	2.3453	18 16 19.1	6.648
9	17 30 56.42	2.3143	21 17 43.1	1.023	9	19 23 18.26	2.3445	18 9 36.8	6.761
10	17 33 15.34	2.3164	21 16 38.1	1.143	10	19 25 38.91	2.3438	18 2 47.8	6.873
11	17 35 34.39	2.3184	21 15 25.9	1.263	11	19 27 59.52	2.3430	17 55 52.0	6.985
12	17 37 53.55	2.3203	21 14 6.5	1.383	12	19 30 20.07	2.3422	17 48 49.6	7.096
13	17 40 12.82	2.3222	21 12 39.9	1.504	13	19 32 40.58	2.3413	17 41 40.5	7.208
14	17 42 32.21	2.3241	21 11 6.0	1.625	14	19 35 1.03	2.3403	17 34 24.7	7.318
15	17 44 51.71	2.3258	21 9 24.9	1.745	15	19 37 21.42	2.3394	17 27 2.4	7.427
16	17 47 11.30	2.3274	21 7 36.6	1.866	16	19 39 41.76	2.3385	17 19 33.5	7.536
17	17 49 31.00	2.3292	21 5 41.0	1.987	17	19 42 2.04	2.3374	17 11 58.1	7.643
18	17 51 50.80	2.3307	21 3 38.2	2.108	18	19 44 22.25	2.3363	17 4 16.3	7.750
19	17 54 10.68	2.3322	21 1 28.1	2.229	19	19 46 42.40	2.3353	16 56 28.1	7.857
20	17 56 30.66	2.3337	20 59 10.7	2.351	20	19 49 2.48	2.3341	16 48 33.5	7.963
21	17 58 50.72	2.3350	20 56 46.0	2.472	21	19 51 22.49	2.3329	16 40 32.5	8.068
22	18 1 10.86	2.3363	20 54 14.1	2.593	22	19 53 42.43	2.3317	16 32 25.3	8.172
23	18 3 31.08	2.3376	S. 20 51 34.8	2.716	23	19 56 2.29	2.3303	S. 16 24 11.9	8.276
FRIDAY 18.					SUNDAY 20.				
	<small>h m s</small>	<small>s</small>	<small>° ' "</small>	<small>"</small>		<small>h m s</small>	<small>s</small>	<small>° ' "</small>	<small>"</small>
0	18 5 51.37	2.3388	S. 20 48 48.2	2.838	0	19 58 22.07	2.3291	S. 16 15 52.2	8.379
1	18 8 11.73	2.3399	20 45 54.3	2.959	1	20 0 41.78	2.3279	16 7 26.4	8.490
2	18 10 32.16	2.3410	20 42 53.1	3.081	2	20 3 1.42	2.3266	15 58 54.6	8.581
3	18 12 52.65	2.3420	20 39 44.6	3.203	3	20 5 20.97	2.3252	15 50 16.7	8.682
4	18 15 13.20	2.3429	20 36 28.8	3.324	4	20 7 40.44	2.3238	15 41 32.8	8.781
5	18 17 33.80	2.3438	20 33 5.7	3.446	5	20 9 59.82	2.3223	15 32 43.0	8.879
6	18 19 54.46	2.3447	20 29 35.3	3.568	6	20 12 19.12	2.3209	15 23 47.3	8.978
7	18 22 15.16	2.3454	20 25 57.6	3.689	7	20 14 38.33	2.3195	15 14 45.7	9.074
8	18 24 35.91	2.3461	20 22 12.6	3.811	8	20 16 57.46	2.3180	15 5 38.4	9.169
9	18 26 56.69	2.3467	20 18 20.3	3.933	9	20 19 16.49	2.3165	14 56 25.4	9.264
10	18 29 17.51	2.3473	20 14 20.7	4.053	10	20 21 35.44	2.3150	14 47 6.7	9.358
11	18 31 38.37	2.3479	20 10 13.9	4.173	11	20 23 54.29	2.3134	14 37 42.4	9.452
12	18 33 59.26	2.3483	20 5 59.9	4.294	12	20 26 13.05	2.3119	14 28 12.5	9.543
13	18 36 20.17	2.3487	20 1 38.6	4.416	13	20 28 31.72	2.3103	14 18 37.2	9.634
14	18 38 41.10	2.3490	19 57 10.0	4.537	14	20 30 50.29	2.3088	14 8 56.4	9.724
15	18 41 2.05	2.3493	19 52 34.2	4.656	15	20 33 8.77	2.3072	13 59 10.3	9.813
16	18 43 23.01	2.3494	19 47 51.3	4.776	16	20 35 27.15	2.3056	13 49 18.9	9.901
17	18 45 43.98	2.3496	19 43 1.1	4.897	17	20 37 45.44	2.3040	13 39 22.2	9.988
18	18 48 4.96	2.3497	19 38 3.7	5.016	18	20 40 3.63	2.3023	13 29 20.4	10.073
19	18 50 25.94	2.3498	19 32 59.2	5.134	19	20 42 21.72	2.3007	13 19 13.4	10.158
20	18 52 46.93	2.3498	19 27 47.6	5.253	20	20 44 39.71	2.2990	13 9 1.4	10.243
21	18 55 7.91	2.3497	19 22 28.8	5.373	21	20 46 57.60	2.2974	12 58 44.3	10.326
22	18 57 28.89	2.3495	19 17 2.9	5.490	22	20 49 15.40	2.2958	12 48 22.3	10.407
23	18 59 49.85	2.3493	19 11 30.0	5.608	23	20 51 33.10	2.2942	12 37 55.5	10.487
24	19 2 10.80	2.3491	S. 19 5 50.0	5.725	24	20 53 50.70	2.2925	S. 12 27 23.9	10.566

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 21.					WEDNESDAY 23.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	20 53 50.70	2.2925	S. 12 27 23.9	10.566	0	22 42 13.32	2.2323	S. 2 51 50.3	12.923
1	20 56 8.20	2.2908	12 16 47.6	10.644	1	22 44 27.24	2.2318	2 38 54.4	12.941
2	20 58 25.60	2.2893	12 6 6.6	10.722	2	22 46 41.14	2.2314	2 25 57.4	12.957
3	21 0 42.91	2.2877	11 55 21.0	10.798	3	22 48 55.01	2.2309	2 12 59.6	12.970
4	21 3 0.12	2.2859	11 44 30.9	10.872	4	22 51 8.85	2.2305	2 0 1.0	12.983
5	21 5 17.22	2.2843	11 33 36.4	10.945	5	22 53 22.67	2.2302	1 47 1.6	12.995
6	21 7 34.23	2.2828	11 22 37.5	11.018	6	22 55 36.47	2.2299	1 34 1.6	13.006
7	21 9 51.15	2.2811	11 11 34.3	11.089	7	22 57 50.26	2.2297	1 21 0.9	13.015
8	21 12 7.96	2.2794	11 0 26.8	11.159	8	23 0 4.03	2.2294	1 7 59.8	13.022
9	21 14 24.68	2.2778	10 49 15.2	11.228	9	23 2 17.79	2.2293	0 54 58.3	13.028
10	21 16 41.30	2.2762	10 37 59.4	11.297	10	23 4 31.54	2.2291	0 41 56.4	13.033
11	21 18 57.82	2.2746	10 26 39.6	11.363	11	23 6 45.28	2.2290	0 28 54.3	13.037
12	21 21 14.25	2.2731	10 15 15.9	11.428	12	23 8 59.02	2.2290	0 15 52.0	13.039
13	21 23 30.59	2.2715	10 3 48.3	11.492	13	23 11 12.76	2.2290	S. 0 2 49.6	13.040
14	21 25 46.83	2.2700	9 52 16.9	11.555	14	23 13 26.50	2.2290	N. 0 10 12.8	13.039
15	21 28 2.99	2.2685	9 40 41.7	11.617	15	23 15 40.24	2.2290	0 23 15.1	13.037
16	21 30 19.05	2.2669	9 29 2.9	11.678	16	23 17 53.98	2.2292	0 36 17.2	13.034
17	21 32 35.02	2.2654	9 17 20.4	11.737	17	23 20 7.74	2.2294	0 49 19.2	13.030
18	21 34 50.90	2.2639	9 5 34.5	11.793	18	23 22 21.51	2.2296	1 2 20.8	13.023
19	21 37 6.69	2.2625	8 53 45.2	11.850	19	23 24 35.29	2.2299	1 15 22.0	13.017
20	21 39 22.40	2.2611	8 41 52.5	11.906	20	23 26 49.10	2.2303	1 28 22.8	13.008
21	21 41 38.02	2.2597	8 29 56.5	11.960	21	23 29 2.92	2.2306	1 41 23.0	12.998
22	21 43 53.56	2.2583	8 17 57.3	12.013	22	23 31 16.77	2.2310	1 54 22.5	12.987
23	21 46 9.01	2.2568	S. 8 5 55.0	12.063	23	23 33 30.64	2.2314	N. 2 7 21.4	12.974
TUESDAY 22.					THURSDAY 24.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	21 48 24.38	2.2555	S. 7 53 49.7	12.113	0	23 35 44.54	2.2319	N. 2 20 19.4	12.960
1	21 50 39.67	2.2542	7 41 41.4	12.163	1	23 37 58.47	2.2325	2 33 16.6	12.945
2	21 52 54.88	2.2529	7 29 30.2	12.211	2	23 40 12.44	2.2331	2 46 12.8	12.928
3	21 55 10.02	2.2517	7 17 16.1	12.258	3	23 42 26.44	2.2337	2 59 7.9	12.910
4	21 57 25.08	2.2504	7 4 59.3	12.302	4	23 44 40.48	2.2343	3 12 2.0	12.892
5	21 59 40.07	2.2493	6 52 39.9	12.345	5	23 46 54.56	2.2351	3 24 54.9	12.871
6	22 1 54.99	2.2480	6 40 17.9	12.388	6	23 49 8.69	2.2359	3 37 46.5	12.848
7	22 4 9.83	2.2468	6 27 53.4	12.429	7	23 51 22.87	2.2367	3 50 36.7	12.825
8	22 6 24.60	2.2457	6 15 26.4	12.469	8	23 53 37.09	2.2375	4 3 25.5	12.801
9	22 8 39.31	2.2447	6 2 57.1	12.507	9	23 55 51.37	2.2384	4 16 12.8	12.776
10	22 10 53.96	2.2436	5 50 25.6	12.544	10	23 58 5.70	2.2393	4 28 58.6	12.749
11	22 13 8.54	2.2425	5 37 51.8	12.581	11	0 0 20.09	2.2404	4 41 42.7	12.720
12	22 15 23.06	2.2415	5 25 15.9	12.615	12	0 2 34.55	2.2415	4 54 25.0	12.690
13	22 17 37.52	2.2405	5 12 38.0	12.648	13	0 4 49.07	2.2425	5 7 5.5	12.659
14	22 19 51.92	2.2396	4 59 58.2	12.679	14	0 7 3.65	2.2436	5 19 44.1	12.627
15	22 22 6.27	2.2388	4 47 16.5	12.710	15	0 9 18.30	2.2448	5 32 20.7	12.593
16	22 24 20.57	2.2378	4 34 33.0	12.740	16	0 11 33.02	2.2459	5 44 55.3	12.559
17	22 26 34.81	2.2370	4 21 47.7	12.768	17	0 13 47.81	2.2472	5 57 27.8	12.522
18	22 28 49.01	2.2363	4 9 0.9	12.794	18	0 16 2.69	2.2486	6 9 58.0	12.484
19	22 31 3.16	2.2355	3 56 12.5	12.818	19	0 18 17.64	2.2498	6 22 25.9	12.446
20	22 33 17.27	2.2348	3 43 22.7	12.842	20	0 20 32.67	2.2512	6 34 51.5	12.407
21	22 35 31.34	2.2342	3 30 31.5	12.865	21	0 22 47.78	2.2526	6 47 14.7	12.365
22	22 37 45.37	2.2335	3 17 38.9	12.886	22	0 25 2.98	2.2541	6 59 35.3	12.322
23	22 39 59.36	2.2329	3 4 45.2	12.905	23	0 27 18.27	2.2556	7 11 53.3	12.278
24	22 42 13.32	2.2323	S. 2 51 50.3	12.923	24	0 29 33.65	2.2571	N. 7 24 8.7	12.233

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 25.					SUNDAY 27.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	0 29 33.65	2.2571	N. 7 24 8.7	12.233	0	2 20 14.57	2.3620	N. 15 56 31.4	8.678
1	0 31 49.12	2.2587	7 36 21.3	12.187	1	2 22 36.37	2.3645	16 5 9.1	8.578
2	0 34 4.69	2.2603	7 48 31.1	12.139	2	2 24 58.31	2.3668	16 13 40.8	8.477
3	0 36 20.35	2.2619	8 0 38.0	12.091	3	2 27 20.39	2.3693	16 22 6.4	8.375
4	0 38 36.12	2.2637	8 12 42.0	12.041	4	2 29 42.62	2.3717	16 30 25.8	8.271
5	0 40 51.99	2.2653	8 24 42.9	11.989	5	2 32 4.99	2.3740	16 38 38.9	8.167
6	0 43 7.96	2.2671	8 36 40.7	11.937	6	2 34 27.50	2.3764	16 46 45.8	8.062
7	0 45 24.04	2.2688	8 48 35.3	11.883	7	2 36 50.16	2.3788	16 54 46.4	7.956
8	0 47 40.22	2.2707	9 0 26.6	11.828	8	2 39 12.96	2.3811	17 2 40.5	7.848
9	0 49 56.52	2.2726	9 12 14.6	11.772	9	2 41 35.89	2.3833	17 10 28.2	7.742
10	0 52 12.93	2.2744	9 23 59.2	11.714	10	2 43 58.96	2.3857	17 18 9.5	7.633
11	0 54 29.45	2.2763	9 35 40.3	11.656	11	2 46 22.17	2.3879	17 25 44.2	7.523
12	0 56 46.09	2.2783	9 47 17.9	11.596	12	2 48 45.51	2.3902	17 33 12.3	7.413
13	0 59 2.85	2.2803	9 58 51.8	11.534	13	2 51 8.99	2.3924	17 40 33.8	7.302
14	1 1 19.73	2.2823	10 10 22.0	11.472	14	2 53 32.60	2.3945	17 47 48.6	7.190
15	1 3 36.73	2.2843	10 21 48.4	11.408	15	2 55 56.33	2.3967	17 54 56.6	7.078
16	1 5 53.85	2.2864	10 33 11.0	11.344	16	2 58 20.20	2.3988	18 1 57.9	6.964
17	1 8 11.10	2.2886	10 44 29.7	11.278	17	3 0 44.19	2.4009	18 8 52.3	6.849
18	1 10 28.48	2.2907	10 55 44.4	11.211	18	3 3 8.31	2.4030	18 15 39.8	6.735
19	1 12 45.98	2.2928	11 6 55.0	11.143	19	3 5 32.55	2.4050	18 22 20.5	6.619
20	1 15 3.62	2.2951	11 18 1.5	11.073	20	3 7 56.91	2.4069	18 28 54.1	6.503
21	1 17 21.39	2.2973	11 29 3.8	11.003	21	3 10 21.38	2.4088	18 35 20.8	6.386
22	1 19 39.29	2.2994	11 40 1.8	10.931	22	3 12 45.97	2.4108	18 41 40.4	6.268
23	1 21 57.32	2.3017	N. 11 50 55.5	10.858	23	3 15 10.68	2.4128	N. 18 47 52.9	6.149
SATURDAY 26.					MONDAY 28.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	1 24 15.49	2.3040	N. 12 1 44.7	10.783	0	3 17 35.50	2.4146	N. 18 53 58.3	6.030
1	1 26 33.80	2.3063	12 12 29.5	10.708	1	3 20 0.43	2.4163	18 59 56.5	5.910
2	1 28 52.24	2.3086	12 23 9.7	10.632	2	3 22 25.46	2.4181	19 5 47.5	5.790
3	1 31 10.83	2.3109	12 33 45.3	10.554	3	3 24 50.60	2.4198	19 11 31.3	5.669
4	1 33 29.55	2.3133	12 44 16.2	10.476	4	3 27 15.84	2.4214	19 17 7.8	5.547
5	1 35 48.42	2.3157	12 54 42.4	10.397	5	3 29 41.17	2.4230	19 22 36.9	5.424
6	1 38 7.43	2.3180	13 5 3.8	10.316	6	3 32 6.60	2.4246	19 27 58.7	5.302
7	1 40 26.58	2.3204	13 15 20.3	10.234	7	3 34 32.12	2.4261	19 33 13.1	5.178
8	1 42 45.88	2.3228	13 25 31.9	10.151	8	3 36 57.73	2.4275	19 38 20.1	5.054
9	1 45 5.32	2.3253	13 35 38.4	10.066	9	3 39 23.42	2.4289	19 43 19.6	4.930
10	1 47 24.91	2.3277	13 45 39.8	9.981	10	3 41 49.20	2.4303	19 48 11.7	4.805
11	1 49 44.64	2.3301	13 55 36.1	9.896	11	3 44 15.06	2.4316	19 52 56.2	4.679
12	1 52 4.52	2.3326	14 5 27.3	9.808	12	3 46 40.99	2.4328	19 57 33.2	4.553
13	1 54 24.55	2.3350	14 15 13.1	9.719	13	3 49 7.00	2.4340	20 2 2.6	4.427
14	1 56 44.72	2.3374	14 24 53.6	9.630	14	3 51 33.07	2.4351	20 6 24.4	4.299
15	1 59 5.04	2.3399	14 34 28.7	9.539	15	3 53 59.21	2.4362	20 10 38.5	4.172
16	2 1 25.51	2.3424	14 43 58.3	9.448	16	3 56 25.41	2.4372	20 14 45.0	4.045
17	2 3 46.13	2.3449	14 53 22.4	9.355	17	3 58 51.67	2.4381	20 18 43.9	3.917
18	2 6 6.90	2.3473	15 2 40.9	9.262	18	4 1 17.98	2.4389	20 22 35.0	3.788
19	2 8 27.81	2.3498	15 11 53.8	9.168	19	4 3 44.34	2.4398	20 26 18.4	3.658
20	2 10 48.87	2.3523	15 21 1.0	9.072	20	4 6 10.75	2.4405	20 29 54.0	3.529
21	2 13 10.08	2.3547	15 30 2.4	8.975	21	4 8 37.20	2.4411	20 33 21.9	3.400
22	2 15 31.43	2.3571	15 38 58.0	8.877	22	4 11 3.68	2.4418	20 36 42.0	3.270
23	2 17 52.93	2.3595	15 47 47.7	8.778	23	4 13 30.20	2.4423	20 39 54.3	3.140
24	2 20 14.57	2.3620	N. 15 56 31.4	8.678	24	4 15 56.75	2.4427	N. 20 42 58.8	3.010

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 29.					THURSDAY 31.				
	<i>h m s</i>	<i>s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>s</i>	<i>° ' "</i>	<i>"</i>
0	4 15 56.75	2.4427	N.20 42 58.8	3.010	0	6 12 20.48	2.3788	N.20 37 2.6	3.171
1	4 18 23.33	2.4432	20 45 55.5	2.879	1	6 14 43.12	2.3758	20 33 48.7	3.291
2	4 20 49.93	2.4434	20 48 44.3	2.748	2	6 17 5.58	2.3728	20 30 27.7	3.410
3	4 23 16.54	2.4437	20 51 25.3	2.618	3	6 19 27.85	2.3696	20 26 59.5	3.528
4	4 25 43.17	2.4439	20 53 58.4	2.486	4	6 21 49.93	2.3663	20 23 24.3	3.645
5	4 28 9.81	2.4441	20 56 23.6	2.355	5	6 24 11.81	2.3630	20 19 42.1	3.762
6	4 30 36.46	2.4441	20 58 41.0	2.224	6	6 26 33.49	2.3597	20 15 52.8	3.878
7	4 33 3.10	2.4440	21 0 50.5	2.093	7	6 28 54.97	2.3563	20 11 56.7	3.993
8	4 35 29.74	2.4439	21 2 52.1	1.960	8	6 31 16.25	2.3529	20 7 53.6	4.108
9	4 37 56.37	2.4438	21 4 45.7	1.828	9	6 33 37.32	2.3494	20 3 43.7	4.223
10	4 40 22.99	2.4435	21 6 31.5	1.697	10	6 35 58.18	2.3459	19 59 26.9	4.336
11	4 42 49.59	2.4432	21 8 9.3	1.565	11	6 38 18.83	2.3423	19 55 3.4	4.448
12	4 45 16.17	2.4428	21 9 39.3	1.433	12	6 40 39.25	2.3386	19 50 33.2	4.559
13	4 47 42.72	2.4423	21 11 1.3	1.301	13	6 42 59.46	2.3350	19 45 56.3	4.670
14	4 50 9.24	2.4418	21 12 15.4	1.169	14	6 45 19.45	2.3313	19 41 12.8	4.779
15	4 52 35.73	2.4412	21 13 21.6	1.037	15	6 47 39.22	2.3275	19 36 22.8	4.888
16	4 55 2.18	2.4405	21 14 19.8	0.904	16	6 49 58.75	2.3237	19 31 26.2	4.997
17	4 57 28.59	2.4397	21 15 10.1	0.773	17	6 52 18.06	2.3199	19 26 23.1	5.105
18	4 59 54.94	2.4388	21 15 52.6	0.642	18	6 54 37.14	2.3160	19 21 13.6	5.212
19	5 2 21.24	2.4379	21 16 27.1	0.510	19	6 56 55.98	2.3121	19 15 57.7	5.318
20	5 4 47.49	2.4369	21 16 53.8	0.379	20	6 59 14.59	2.3081	19 10 35.5	5.424
21	5 7 13.67	2.4358	21 17 12.6	0.248	21	7 1 32.95	2.3041	19 5 7.1	5.526
22	5 9 39.78	2.4346	21 17 23.5	+0.116	22	7 3 51.08	2.3002	18 59 32.4	5.629
23	5 12 5.82	2.4334	N.21 17 26.5	-0.015	23	7 6 8.97	2.2961	N.18 53 51.6	5.731
WEDNESDAY 30.					FRIDAY, FEBRUARY 1.				
	<i>h m s</i>	<i>s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>s</i>	<i>° ' "</i>	<i>"</i>
0	5 14 31.79	2.4321	N.21 17 21.7	0.145	0	7 8 26.61	2.2919	N.18 48 4.7	5.833
1	5 16 57.67	2.4307	21 17 9.1	0.276					
2	5 19 23.47	2.4293	21 16 48.6	0.407					
3	5 21 49.18	2.4277	21 16 20.3	0.536					
4	5 24 14.79	2.4261	21 15 44.3	0.665					
5	5 26 40.31	2.4244	21 15 0.5	0.795					
6	5 29 5.72	2.4226	21 14 8.9	0.924					
7	5 31 31.02	2.4208	21 13 9.6	1.053					
8	5 33 56.21	2.4188	21 12 2.5	1.182					
9	5 36 21.28	2.4168	21 10 47.8	1.309					
10	5 38 46.23	2.4148	21 9 25.4	1.437					
11	5 41 11.06	2.4127	21 7 55.4	1.563					
12	5 43 35.75	2.4104	21 6 17.8	1.691					
13	5 46 0.31	2.4082	21 4 32.5	1.818					
14	5 48 24.73	2.4058	21 2 39.7	1.943					
15	5 50 49.01	2.4035	21 0 39.4	2.068					
16	5 53 13.15	2.4010	20 58 31.5	2.193					
17	5 55 37.13	2.3984	20 56 16.2	2.317					
18	5 58 0.96	2.3958	20 53 53.5	2.441					
19	6 0 24.63	2.3932	20 51 23.3	2.564					
20	6 2 48.14	2.3904	20 48 45.8	2.687					
21	6 5 11.48	2.3877	20 46 0.9	2.809					
22	6 7 34.66	2.3848	20 43 8.7	2.931					
23	6 9 57.66	2.3818	20 40 9.2	3.051					
24	6 12 20.48	2.3788	N.20 37 2.6	3.171					
					PHASES OF THE MOON.				
						<i>d h m</i>			
○	Full Moon	Jan.	4 12 13.5						
☾	Last Quarter		12 8 38.2						
●	New Moon		20 2 35.8						
☾	First Quarter		26 21 52.2						
						<i>d h</i>			
☾	Apogee	Jan.	11 23.0						
☾	Perigee		23 23.5						

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	Fomalhaut W.	83 34 34	2778	85 9 31	2778	86 44 28	2780	88 19 22	2782
	α Pegasi W.	64 41 28	2469	66 23 25	2468	68 5 23	2467	69 47 22	2467
	α Arietis W.	21 11 26	2598	22 50 24	2560	24 30 14	2530	26 10 45	2507
	Pollux E.	56 40 32	2409	54 57 10	2417	53 14 0	2425	51 31 1	2436
	Regulus E.	93 5 20	2319	91 19 48	2322	89 34 20	2325	87 48 57	2328
	MARS E.	106 17 15	2389	104 33 25	2391	102 49 38	2394	101 5 55	2396
2	Fomalhaut W.	96 12 35	2811	97 46 48	2821	99 20 48	2832	100 54 35	2844
	α Pegasi W.	78 17 2	2477	79 58 48	2480	81 40 29	2485	83 22 4	2489
	α Arietis W.	34 39 26	2450	36 21 50	2445	38 4 21	2443	39 46 55	2441
	Pollux E.	43 0 6	2500	41 18 53	2519	39 38 6	2539	37 57 46	2561
	Regulus E.	79 3 27	2351	77 18 42	2357	75 34 6	2363	73 49 38	2369
	MARS E.	92 28 21	2415	90 45 8	2420	89 2 2	2425	87 19 3	2431
3	Fomalhaut W.	108 39 7	2922	110 10 58	2942	111 42 23	2964	113 13 21	2987
	α Pegasi W.	91 47 58	2524	93 28 38	2532	95 9 7	2541	96 49 23	2551
	α Arietis W.	48 19 41	2451	50 2 3	2456	51 44 18	2461	53 26 27	2467
	Aldebaran W.	15 17 47	2588	16 56 58	2561	18 36 47	2540	20 17 4	2527
	Regulus E.	65 9 46	2407	63 26 21	2416	61 43 9	2424	60 0 9	2434
	MARS E.	78 46 27	2467	77 4 27	2475	75 22 39	2484	73 41 3	2493
	Spica E.	119 0 48	2382	117 16 48	2390	115 32 59	2398	113 49 23	2407
4	α Pegasi W.	105 7 9	2608	106 45 53	2621	108 24 20	2635	110 2 28	2649
	α Arietis W.	61 54 49	2504	63 35 57	2514	65 16 51	2522	66 57 33	2531
	Aldebaran W.	28 41 7	2517	30 21 56	2521	32 2 40	2527	33 43 16	2533
	Regulus E.	51 28 47	2489	49 47 18	2500	48 6 5	2513	46 25 10	2527
	MARS E.	65 16 28	2545	63 36 18	2557	61 56 24	2569	60 16 47	2583
	Spica E.	105 14 30	2455	103 32 12	2465	101 50 10	2475	100 8 22	2486
5	α Arietis W.	75 17 33	2586	76 56 47	2597	78 35 46	2610	80 14 28	2622
	Aldebaran W.	42 3 41	2576	43 43 9	2588	45 22 21	2597	47 1 20	2608
	Regulus E.	38 5 24	2601	36 26 30	2618	34 47 59	2635	33 9 52	2654
	MARS E.	52 3 17	2653	50 25 34	2669	48 48 12	2685	47 11 12	2703
	Spica E.	91 43 18	2544	90 3 7	2557	88 23 12	2569	86 43 34	2581
6	α Arietis W.	88 23 45	2686	90 0 44	2698	91 37 26	2712	93 13 49	2725
	Aldebaran W.	55 12 21	2667	56 49 45	2681	58 26 51	2692	60 3 42	2705
	Pollux W.	16 25 27	2746	17 41 26	2780	19 0 22	2752	20 21 40	2734
	MARS E.	39 12 14	2800	37 37 46	2822	36 3 47	2846	34 30 19	2872
	Spica E.	78 29 48	2646	76 51 56	2660	75 14 22	2673	73 37 6	2686
7	α Arietis W.	101 11 17	2795	102 45 52	2808	104 20 9	2821	105 54 9	2835
	Aldebaran W.	68 3 37	2769	69 38 45	2783	71 13 35	2795	72 48 9	2808
	Pollux W.	27 29 9	3113	28 57 3	3091	30 25 23	3076	31 54 2	3063
	Spica E.	65 35 12	2753	63 59 43	2766	62 24 32	2779	60 49 37	2793
	Antares E.	111 0 9	2772	109 25 5	2785	107 50 18	2798	106 15 48	2811
8	Aldebaran W.	80 36 54	2870	82 9 51	2882	83 42 32	2894	85 14 58	2905
	Pollux W.	39 19 52	3043	40 49 11	3043	42 18 30	3045	43 47 46	3048
	Spica E.	52 59 17	2857	51 26 3	2869	49 53 4	2880	48 20 20	2892
	Antares E.	98 27 24	2873	96 54 31	2886	95 21 54	2898	93 49 32	2909
	SUN E.	137 50 58	3245	136 25 42	3257	135 0 40	3270	133 35 53	3282

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	Fomalhaut W.	89 54 13	2786	91 28 59	2791	93 3 39	2797	94 38 12	2804
	<i>a</i> Pegasi W.	71 29 21	2467	73 11 20	2469	74 53 17	2471	76 35 11	2473
	<i>a</i> Arietis W.	27 51 48	2489	29 33 17	2475	31 15 6	2464	32 57 10	2455
	Pollux E.	49 48 17	2446	48 5 48	2458	46 23 35	2471	44 41 40	2485
	Regulus E.	86 3 39	2332	84 18 27	2336	82 33 20	2341	80 48 20	2346
	MARS E.	99 22 14	2399	97 38 38	2403	95 55 7	2406	94 11 41	2410
2	Fomalhaut W.	102 28 6	2857	104 1 20	2871	105 34 17	2887	107 6 53	2904
	<i>a</i> Pegasi W.	85 43 32	2495	86 44 52	2501	88 26 4	2508	90 7 6	2515
	<i>a</i> Arietis W.	41 29 31	2441	43 12 7	2442	44 54 42	2444	46 37 14	2448
	Pollux E.	36 17 57	2585	34 38 42	2613	33 0 5	2645	31 22 12	2681
	Regulus E.	72 5 19	2376	70 21 10	2383	68 37 11	2391	66 53 23	2399
	MARS E.	85 36 13	2438	83 53 32	2444	82 11 0	2451	80 28 38	2459
3	Fomalhaut W.	114 43 50	3013	116 13 47	3040	117 43 10	3069	119 11 58	3100
	<i>a</i> Pegasi W.	98 29 26	2561	100 9 15	2572	101 48 49	2583	103 28 7	2595
	<i>a</i> Arietis W.	55 8 27	2474	56 50 17	2480	58 31 58	2487	60 13 29	2495
	Aldebaran W.	21 57 40	2519	23 38 27	2515	25 19 20	2514	27 0 14	2515
	Regulus E.	58 17 23	2444	56 34 51	2455	54 52 35	2466	53 10 33	2477
	MARS E.	71 59 40	2502	70 18 30	2513	68 37 35	2523	66 56 54	2534
	Spica E.	112 5 58	2416	110 22 46	2426	108 39 47	2435	106 57 2	2444
4	<i>a</i> Pegasi W.	111 40 16	2664	113 17 44	2681	114 54 50	2696	116 31 35	2713
	<i>a</i> Arietis W.	68 38 3	2543	70 18 17	2553	71 58 17	2563	73 38 3	2574
	Aldebaran W.	35 23 43	2541	37 3 59	2548	38 44 4	2556	40 23 59	2566
	Regulus E.	44 44 34	2540	43 4 16	2554	41 24 18	2569	39 44 40	2585
	MARS E.	58 37 28	2596	56 58 27	2610	55 19 44	2624	53 41 21	2638
	Spica E.	98 26 49	2497	96 45 32	2509	95 4 31	2521	93 23 46	2533
5	<i>a</i> Arietis W.	81 52 54	2634	83 31 3	2647	85 8 54	2660	86 46 28	2672
	Aldebaran W.	48 40 4	2620	50 18 32	2632	51 56 44	2643	53 34 41	2655
	Regulus E.	31 32 10	2675	29 54 56	2696	28 18 11	2718	26 41 55	2742
	MARS E.	45 34 36	2720	43 58 23	2738	42 22 33	2758	40 47 10	2779
	Spica E.	85 4 14	2594	83 25 11	2607	81 46 26	2620	80 7 58	2633
6	<i>a</i> Arietis W.	94 49 55	2740	96 25 42	2753	98 1 12	2766	99 36 24	2781
	Aldebaran W.	61 40 15	2718	63 16 31	2731	64 52 30	2744	66 28 12	2756
	Pollux W.	21 44 49	3279	23 9 25	3220	24 35 10	3176	26 1 48	3140
	MARS E.	32 57 24	2900	31 25 5	2930	29 53 23	2962	28 22 22	2996
	Spica E.	72 0 7	2700	70 23 27	2713	68 47 4	2726	67 10 59	2740
7	<i>a</i> Arietis W.	107 27 51	2850	109 1 14	2863	110 34 20	2877	112 7 8	2889
	Aldebaran W.	74 22 27	2821	75 56 27	2833	77 30 12	2845	79 3 41	2858
	Pollux W.	33 22 57	3053	34 52 4	3048	36 21 18	3046	37 50 34	3044
	Spica E.	59 15 0	2806	57 40 40	2818	56 6 36	2831	54 32 48	2844
	Antares E.	104 41 35	2825	103 7 39	2836	101 33 58	2848	100 0 33	2861
8	Aldebaran W.	86 47 10	2917	88 19 7	2929	89 50 49	2939	91 22 18	2950
	Pollux W.	45 17 0	3052	46 46 9	3054	48 15 15	3058	49 44 16	3063
	Spica E.	46 47 51	2904	45 15 37	2916	43 43 38	2926	42 11 52	2937
	Antares E.	92 17 24	2920	90 45 31	2932	89 13 53	2943	87 42 28	2954
	SUN E.	132 11 20	3294	130 47 1	3305	129 22 55	3317	127 59 3	3329

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
9	Aldebaran W.	92 53 34	2961	94 24 36	2970	95 55 26	2980	97 26 4	2990
	Pollux W.	51 13 11	3069	52 41 58	3074	54 10 39	3079	55 39 14	3084
	Spica E.	40 40 20	2947	39 9 1	2958	37 37 56	2967	36 7 2	2977
	Antares E.	86 11 17	2964	84 40 19	2974	83 9 33	2984	81 39 0	2993
	SUN E.	126 35 23	3340	125 11 56	3350	123 48 42	3359	122 25 39	3369
10	Aldebaran W.	104 56 22	3032	106 25 55	3039	107 55 19	3046	109 24 35	3052
	Pollux W.	63 0 32	3110	64 28 29	3115	65 56 20	3119	67 24 6	3124
	Regulus W.	25 58 39	3120	27 26 24	3118	28 54 12	3116	30 22 2	3114
	Spica E.	28 35 26	3020	27 5 38	3027	25 35 59	3034	24 6 28	3041
	Antares E.	74 9 3	3035	72 39 34	3043	71 10 15	3050	69 41 4	3056
	SUN E.	115 33 5	3413	114 11 3	3422	112 49 11	3429	111 27 27	3435
11	Pollux W.	74 41 43	3141	76 9 3	3144	77 36 19	3146	79 3 33	3147
	Regulus W.	37 41 25	3114	39 9 17	3114	40 37 9	3114	42 5 2	3114
	MARS W.	24 36 10	3346	25 59 28	3322	27 23 14	3301	28 47 24	3282
	Antares E.	62 17 2	3083	60 48 32	3087	59 20 8	3091	57 51 48	3095
	SUN E.	104 40 23	3461	103 19 15	3465	101 58 12	3468	100 37 12	3470
12	Pollux W.	86 19 24	3150	87 46 33	3149	89 13 43	3148	90 40 54	3147
	Regulus W.	49 24 33	3110	50 52 31	3107	52 20 32	3105	53 48 36	3102
	MARS W.	35 52 54	3217	37 18 43	3207	38 44 44	3197	40 10 57	3188
	Antares E.	50 30 59	3105	49 2 56	3106	47 34 54	3106	46 6 52	3107
	SUN E.	93 52 44	3477	92 31 54	3476	91 11 3	3474	89 50 11	3472
13	Pollux W.	97 57 26	3133	99 24 55	3130	100 52 28	3125	102 20 7	3121
	Regulus W.	61 9 53	3082	62 38 24	3078	64 7 1	3072	65 35 45	3066
	MARS W.	47 24 42	3143	48 51 59	3135	50 19 26	3126	51 47 5	3117
	Spica W.	7 7 19	3097	8 35 32	3084	10 4 1	3072	11 32 45	3060
	Antares E.	38 46 43	3104	37 18 38	3104	35 50 33	3102	34 22 26	3101
	SUN E.	83 5 8	3457	81 43 56	3453	80 22 39	3447	79 1 16	3441
14	Regulus W.	73 1 28	3030	74 31 4	3021	76 0 51	3012	77 30 49	3002
	MARS W.	59 8 10	3067	60 37 0	3056	62 6 3	3046	63 35 19	3034
	Spica W.	18 59 35	3014	20 29 31	3004	21 59 39	2995	23 29 57	2986
	SUN E.	72 12 31	3405	70 50 20	3395	69 27 59	3387	68 5 28	3378
15	Regulus W.	85 3 43	2950	86 34 58	2939	88 6 27	2927	89 38 11	2915
	MARS W.	71 5 13	2975	72 35 57	2962	74 6 57	2948	75 38 15	2936
	Spica W.	31 4 38	2983	32 36 15	2921	34 8 7	2909	35 40 14	2898
	SUN E.	61 10 0	3325	59 46 17	3313	58 22 20	3300	56 58 9	3288
16	Regulus W.	97 20 45	2852	98 54 5	2838	100 27 43	2825	102 1 38	2811
	MARS W.	83 18 52	2868	84 51 52	2853	86 25 11	2839	87 58 48	2825
	Spica W.	43 24 49	2833	44 58 34	2819	46 32 37	2805	48 6 58	2791
	SUN E.	49 53 30	3222	48 27 47	3209	47 1 48	3194	45 35 32	3181
17	MARS W.	95 51 39	2751	97 27 11	2737	99 3 2	2722	100 39 13	2707
	Spica W.	56 3 23	2719	57 39 38	2704	59 16 11	2689	60 53 5	2675
	SUN E.	38 20 5	3111	36 52 9	3098	35 23 57	3085	33 55 29	3073
18	MARS W.	108 44 57	2636	110 23 3	2622	112 1 28	2609	113 40 11	2596

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
9	Aldebaran	W.	98 56 29	2999	100 26 43	3008	101 56 46	3016	103 26 39	3024
	Pollux	W.	57 7 43	3090	58 36 5	3096	60 4 20	3101	61 32 29	3106
	Spica	E.	34 36 21	2986	33 5 51	2996	31 35 32	3004	30 5 24	3011
	Antares	E.	80 8 38	3002	78 38 28	3012	77 8 30	3020	75 38 42	3027
	SUN	E.	121 2 47	3379	119 40 6	3388	118 17 36	3397	116 55 16	3405
10	Aldebaran	W.	110 53 43	3059	112 22 43	3065	113 51 36	3069	115 20 23	3074
	Pollux	W.	68 51 46	3129	70 19 21	3132	71 46 52	3135	73 14 19	3138
	Regulus	W.	31 49 54	3114	33 17 47	3114	34 45 40	3114	36 13 33	3114
	Spica	E.	22 37 6	3047	21 7 52	3054	19 38 46	3060	18 9 47	3065
	Antares	E.	68 12 1	3063	66 43 6	3069	65 14 19	3074	63 45 38	3078
	SUN	E.	110 5 49	3441	108 44 19	3446	107 22 55	3451	106 1 36	3456
11	Pollux	W.	80 30 46	3148	81 57 57	3150	83 25 6	3150	84 52 15	3150
	Regulus	W.	43 32 55	3114	45 0 48	3114	46 28 41	3112	47 56 36	3110
	MARS	W.	30 11 56	3266	31 36 47	3252	33 1 55	3240	34 27 17	3227
	Antares	E.	56 23 32	3093	54 55 20	3100	53 27 11	3102	51 59 4	3104
	SUN	E.	99 16 14	3473	97 55 20	3474	96 34 27	3475	95 13 35	3476
12	Pollux	W.	92 8 7	3145	93 35 22	3143	95 2 40	3140	96 30 1	3137
	Regulus	W.	55 16 43	3100	56 44 53	3096	58 13 8	3091	59 41 28	3087
	MARS	W.	41 37 21	3179	43 3 55	3170	44 30 40	3161	45 57 36	3153
	Antares	E.	44 38 51	3107	43 10 50	3106	41 42 48	3106	40 14 46	3105
	SUN	E.	88 29 16	3471	87 8 19	3468	85 47 19	3465	84 26 15	3462
13	Pollux	W.	103 47 51	3116	105 15 41	3111	106 43 37	3105	108 11 40	3100
	Regulus	W.	67 4 37	3060	68 33 36	3052	70 2 44	3045	71 32 1	3037
	MARS	W.	53 14 54	3108	54 42 54	3098	56 11 6	3087	57 39 32	3077
	Spica	W.	13 1 43	3050	14 30 55	3040	16 0 18	3032	17 29 51	3023
	Antares	E.	32 54 17	3101	31 26 8	3100	29 57 58	3100	28 29 48	3100
	SUN	E.	77 39 46	3435	76 18 9	3428	74 56 25	3421	73 34 32	3414
14	Regulus	W.	79 0 59	2993	80 31 21	2983	82 1 55	2973	83 32 42	2963
	MARS	W.	65 4 49	3023	66 34 33	3012	68 4 31	3000	69 34 44	2987
	Spica	W.	25 0 27	2976	26 31 10	2965	28 2 6	2955	29 33 15	2944
	SUN	E.	66 42 46	3367	65 19 52	3358	63 56 48	3347	62 33 31	3335
15	Regulus	W.	91 10 10	2903	92 42 25	2891	94 14 55	2878	95 47 42	2866
	MARS	W.	77 9 48	2924	78 41 37	2909	80 13 44	2894	81 46 10	2882
	Spica	W.	37 12 38	2884	38 45 17	2873	40 18 11	2859	41 51 22	2846
	SUN	E.	55 33 43	3276	54 9 3	3263	52 44 8	3249	51 18 57	3236
16	Regulus	W.	103 35 51	2798	105 10 22	2784	106 45 11	2769	108 20 19	2755
	MARS	W.	89 32 44	2810	91 6 59	2795	92 41 33	2781	94 16 26	2766
	Spica	W.	49 41 38	2777	51 16 36	2763	52 51 52	2748	54 27 28	2734
	SUN	E.	44 9 0	3167	42 42 11	3153	41 15 6	3139	39 47 44	3125
17	MARS	W.	102 15 43	2692	103 52 33	2678	105 29 42	2664	107 7 10	2650
	Spica	W.	62 30 18	2660	64 7 51	2646	65 45 44	2631	67 23 58	2615
	SUN	E.	32 26 46	3060	30 57 48	3048	29 28 35	3037	27 59 8	3027
18	MARS	W.	115 19 12	2583	116 58 30	2571	118 38 5	2558	120 17 58	2546

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
18	Spica	W.	69 2 32	2601	70 41 26	2586	72 20 39	2572	74 0 12	2558
	SUN	E.	26 29 29	3018	24 59 38	3011	23 29 39	3005	21 59 32	3002
22	SUN	W.	25 16 31	2652	26 54 16	2640	28 32 17	2629	30 10 32	2620
	<i>a</i> Arietis	E.	69 8 47	2309	67 23 1	2305	65 37 9	2302	63 51 13	2301
	Aldebaran	E.	102 11 54	2275	100 25 18	2271	98 38 36	2267	96 51 47	2263
23	SUN	W.	38 24 34	2588	40 3 45	2585	41 43 0	2582	43 22 20	2579
	<i>a</i> Arietis	E.	55 1 7	2300	53 15 7	2301	51 29 9	2303	49 43 14	2307
	Aldebaran	E.	87 56 31	2250	86 9 18	2249	84 22 3	2247	82 34 46	2247
24	SUN	W.	51 39 34	2576	53 19 2	2577	54 58 29	2577	56 37 55	2578
	<i>a</i> Arietis	E.	40 55 18	2337	39 10 12	2347	37 25 21	2357	35 40 45	2370
	Aldebaran	E.	73 38 22	2250	71 51 9	2252	70 3 59	2254	68 16 51	2256
	Pollux	E.	115 37 36	2326	113 52 14	2326	112 6 52	2325	110 21 29	2325
25	SUN	W.	64 54 30	2591	66 33 38	2593	68 12 42	2597	69 51 41	2601
	Aldebaran	E.	59 22 12	2272	57 35 32	2277	55 48 58	2281	54 2 30	2285
	Pollux	E.	101 34 45	2331	99 49 31	2334	98 4 21	2336	96 19 14	2339
26	SUN	W.	78 5 14	2623	79 43 38	2627	81 21 56	2632	83 0 7	2638
	Aldebaran	E.	45 12 3	2313	43 26 23	2320	41 40 53	2327	39 55 33	2335
	Pollux	E.	87 35 1	2360	85 50 29	2366	84 6 5	2371	82 21 48	2376
27	SUN	W.	91 9 11	2666	92 46 36	2672	94 23 54	2678	96 1 4	2684
	<i>a</i> Pegasi	W.	48 13 30	2584	49 52 47	2578	51 32 12	2572	53 11 46	2566
	Pollux	E.	73 42 30	2408	71 59 6	2415	70 15 53	2422	68 32 50	2430
	Regulus	E.	110 23 10	2347	108 38 19	2352	106 53 35	2357	105 8 59	2362
28	SUN	W.	104 4 47	2716	105 41 5	2722	107 17 15	2729	108 53 16	2736
	<i>a</i> Pegasi	W.	61 30 52	2556	63 10 47	2557	64 50 41	2557	66 30 35	2559
	<i>a</i> Arietis	W.	18 11 26	2804	19 45 49	2742	21 21 33	2695	22 58 20	2660
	Pollux	E.	60 0 28	2474	58 18 38	2483	56 37 1	2494	54 55 39	2504
	Regulus	E.	96 27 54	2390	94 44 5	2396	93 0 25	2402	91 16 53	2408
	MARS	E.	108 55 58	2366	107 11 35	2371	105 27 19	2375	103 43 9	2381
29	SUN	W.	116 51 1	2772	118 26 5	2780	120 0 59	2788	121 35 43	2795
	<i>a</i> Pegasi	W.	74 49 19	2574	76 28 50	2578	78 8 15	2583	79 47 34	2587
	<i>a</i> Arietis	W.	31 11 11	2571	32 50 44	2565	34 30 27	2560	36 10 17	2556
	Pollux	E.	46 32 54	2569	44 53 17	2585	43 14 2	2602	41 35 10	2621
	Regulus	E.	82 41 23	2439	80 58 44	2446	79 16 15	2453	77 33 55	2459
	MARS	E.	95 4 6	2406	93 20 40	2412	91 37 23	2418	89 54 13	2424
30	<i>a</i> Arietis	W.	44 30 12	2555	46 10 9	2558	47 50 2	2560	49 29 52	2564
	Regulus	E.	69 4 39	2494	67 23 18	2502	65 42 8	2510	64 1 8	2517
	MARS	E.	81 20 37	2456	79 38 22	2463	77 56 17	2470	76 14 21	2477
31	<i>a</i> Arietis	W.	57 47 39	2587	59 26 52	2593	61 5 57	2599	62 44 54	2604
	Aldebaran	W.	24 33 20	2606	26 12 7	2607	27 50 53	2607	29 29 39	2609
	Regulus	E.	55 38 55	2559	53 59 3	2568	52 19 24	2577	50 39 58	2586
	MARS	E.	67 47 25	2517	66 6 36	2527	64 26 0	2536	62 45 36	2545
	Spica	E.	109 25 59	2530	107 45 27	2537	106 5 5	2545	104 24 54	2552

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
18	Spica	W.	75 40 5	2543	77 20 18	2530	79 0 50	2516	80 41 42	2503
	SUN	E.	20 29 22	3001	18 59 11	3005	17 29 5	3017	15 59 13	3034
22	SUN	W.	31 49 0	2612	33 27 39	2604	35 6 29	2597	36 45 28	2592
	α Arietis	E.	62 5 15	2299	60 19 14	2298	58 33 12	2298	56 47 9	2298
	Aldebaran	E.	95 4 53	2260	93 17 54	2256	91 30 50	2253	89 43 42	2251
23	SUN	W.	45 1 44	2577	46 41 10	2577	48 20 37	2576	50 0 5	2575
	α Arietis	E.	47 57 24	2311	46 11 40	2316	44 26 4	2322	42 40 36	2328
	Aldebaran	E.	80 47 28	2247	79 0 10	2248	77 12 54	2248	75 25 37	2249
24	SUN	W.	58 17 20	2580	59 56 42	2583	61 36 1	2585	63 15 17	2587
	α Arietis	E.	33 56 27	2385	32 12 31	2405	30 29 3	2425	28 46 4	2444
	Aldebaran	E.	66 29 46	2258	64 42 45	2261	62 55 50	2264	61 8 58	2268
	Pollux	E.	108 36 6	2326	106 50 44	2326	105 5 22	2327	103 20 2	2329
25	SUN	W.	71 30 35	2605	73 9 23	2609	74 48 6	2613	76 26 43	2618
	Aldebaran	E.	52 16 9	2291	50 29 56	2296	48 43 50	2301	46 57 52	2307
	Pollux	E.	94 34 12	2344	92 49 16	2347	91 4 25	2351	89 19 40	2355
26	SUN	W.	84 38 11	2643	86 16 7	2649	87 53 56	2655	89 31 37	2660
	Aldebaran	E.	38 10 24	2342	36 25 27	2350	34 40 42	2359	32 56 9	2371
	Pollux	E.	80 37 39	2382	78 53 39	2388	77 9 47	2394	75 26 4	2401
27	SUN	W.	97 38 6	2691	99 14 58	2696	100 51 43	2703	102 28 19	2709
	α Pegasi	W.	54 51 27	2562	56 31 14	2559	58 11 5	2558	59 50 58	2557
	Pollux	E.	66 49 58	2438	65 7 18	2446	63 24 49	2455	61 42 32	2464
	Regulus	E.	103 24 30	2368	101 40 9	2373	99 55 56	2379	98 11 51	2384
28	SUN	W.	110 29 8	2744	112 4 50	2750	113 40 23	2757	115 15 47	2765
	α Pegasi	W.	68 10 27	2561	69 50 16	2564	71 30 1	2566	73 9 42	2570
	α Arietis	W.	24 35 54	2632	26 14 6	2611	27 52 46	2593	29 31 50	2580
	Pollux	E.	53 14 32	2516	51 33 41	2528	49 53 7	2541	48 12 51	2555
	Regulus	E.	89 33 29	2414	87 50 14	2420	86 7 8	2426	84 24 11	2433
	MARS	E.	101 59 7	2385	100 15 11	2390	98 31 22	2395	96 47 40	2401
29	SUN	W.	123 10 18	2803	124 44 42	2811	126 18 56	2819	127 52 59	2828
	α Pegasi	W.	81 26 47	2593	83 5 52	2598	84 44 50	2604	86 23 40	2610
	α Arietis	W.	37 50 13	2553	39 30 12	2552	41 10 13	2553	42 50 13	2553
	Pollux	E.	39 56 43	2641	38 18 44	2663	36 41 14	2687	35 4 16	2713
	Regulus	E.	75 51 44	2466	74 9 43	2473	72 27 52	2480	70 46 11	2487
	MARS	E.	88 11 12	2429	86 28 19	2436	84 45 36	2443	83 3 2	2449
30	α Arietis	W.	51 9 37	2568	52 49 16	2572	54 28 50	2576	56 8 18	2581
	Regulus	E.	62 20 19	2525	60 39 41	2533	58 59 14	2542	57 18 59	2550
	MARS	E.	74 32 36	2485	72 51 1	2493	71 9 38	2501	69 28 26	2509
31	α Arietis	W.	64 23 44	2611	66 2 24	2618	67 40 55	2625	69 19 17	2632
	Aldebaran	W.	31 8 22	2610	32 47 3	2614	34 25 39	2619	36 4 8	2624
	Regulus	E.	49 0 44	2596	47 21 43	2606	45 42 56	2616	44 4 23	2627
	MARS	E.	61 5 25	2555	59 25 28	2564	57 45 44	2574	56 6 14	2586
	Spica	E.	102 44 53	2561	101 5 4	2569	99 25 26	2576	97 45 58	2585

AT GREENWICH APPARENT NOON.

THE SUN'S															
Day of the Week.	Day of the Month.	Apparent Right Ascension.			Diff. for 1 Hour.	Apparent Declination.			Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.		
		h	m	s	s	°	'	"	"	'	"	s	m	s	s
Frid.	1	20	57	47.15	10.198	S. 17	12	25.7	+42.40	16	14.87	68.23	13	45.60	0.342
Sat.	2	21	1	51.53	10.164	16	55	19.0	43.14	16	14.72	68.12	13	53.40	0.307
SUN.	3	21	5	55.05	10.130	16	37	54.7	43.87	16	14.57	68.00	14	0.35	0.273
Mon.	4	21	9	57.77	10.096	16	20	12.9	+44.59	16	14.41	67.89	14	6.49	0.239
Tues.	5	21	13	59.67	10.062	16	2	14.3	45.29	16	14.25	67.77	14	11.81	0.205
Wed.	6	21	18	0.75	10.028	15	43	59.1	45.97	16	14.09	67.65	14	16.34	0.172
Thur.	7	21	22	1.02	9.995	15	25	27.6	+46.64	16	13.92	67.54	14	20.05	0.139
Frid.	8	21	26	0.52	9.963	15	6	40.4	47.29	16	13.75	67.42	14	22.99	0.106
Sat.	9	21	29	59.23	9.930	14	47	37.8	47.92	16	13.57	67.31	14	25.13	0.074
SUN.	10	21	33	57.17	9.898	14	28	20.3	+48.54	16	13.39	67.20	14	26.50	0.042
Mon.	11	21	37	54.33	9.866	14	8	48.3	49.13	16	13.20	67.09	14	27.11	0.010
Tues.	12	21	41	50.73	9.835	13	49	2.1	49.71	16	13.01	66.98	14	26.97	0.021
Wed.	13	21	45	46.39	9.804	13	29	2.2	+50.27	16	12.82	66.87	14	26.07	0.052
Thur.	14	21	49	41.31	9.773	13	8	49.1	50.82	16	12.63	66.76	14	24.45	0.083
Frid.	15	21	53	35.50	9.743	12	48	23.1	51.35	16	12.43	66.66	14	22.08	0.113
Sat.	16	21	57	28.97	9.713	12	27	44.6	+51.86	16	12.23	66.56	14	19.01	0.143
SUN.	17	22	1	21.73	9.684	12	6	54.2	52.35	16	12.02	66.46	14	15.22	0.172
Mon.	18	22	5	13.79	9.655	11	45	52.2	52.82	16	11.82	66.36	14	10.75	0.201
Tues.	19	22	9	5.15	9.626	11	24	39.1	+53.26	16	11.61	66.26	14	5.57	0.230
Wed.	20	22	12	55.84	9.598	11	3	15.3	53.69	16	11.40	66.16	13	59.71	0.258
Thur.	21	22	16	45.85	9.570	10	41	41.3	54.11	16	11.18	66.06	13	53.18	0.285
Frid.	22	22	20	35.20	9.543	10	19	57.5	+54.52	16	10.96	65.97	13	46.00	0.313
Sat.	23	22	24	23.91	9.516	9	58	4.3	54.90	16	10.74	65.88	13	38.16	0.340
SUN.	24	22	28	11.96	9.490	9	36	2.2	55.27	16	10.51	65.79	13	29.69	0.366
Mon.	25	22	31	59.40	9.464	9	13	51.4	+55.62	16	10.28	65.71	13	20.59	0.391
Tues.	26	22	35	46.22	9.439	8	51	32.6	55.95	16	10.04	65.63	13	10.89	0.416
Wed.	27	22	39	32.45	9.415	8	29	6.0	56.27	16	9.80	65.55	13	0.60	0.440
Thur.	28	22	43	18.12	9.392	8	6	32.0	56.57	16	9.56	65.47	12	49.75	0.463
Frid.	29	22	47	3.23	9.369	S. 7	43	50.9	+56.86	16	9.32	65.39	12	38.34	0.486

NOTE.—The mean time of semidiameter passing may be found by subtracting 0.18 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ' "	"	m s	s	h m s
Frid.	1	20 57 44.82	+ 10.198	S. 17 12 35.4	+ 42.38	13 45.52	- 0.342	20 43 59.30
Sat.	2	21 1 49.18	10.164	16 55 29.0	43.13	13 53.32	0.307	20 47 55.86
SUN.	3	21 5 52.69	10.130	16 38 4.9	43.86	14 0.28	0.273	20 51 52.41
Mon.	4	21 9 55.40	+ 10.096	16 20 23.4	+ 44.58	14 6.43	- 0.239	20 55 48.97
Tues.	5	21 13 57.29	10.062	16 2 25.0	45.28	14 11.76	0.205	20 59 45.52
Wed.	6	21 17 58.37	10.028	15 44 10.0	45.96	14 16.29	0.172	21 3 42.08
Thur.	7	21 21 58.64	+ 9.995	15 25 38.7	+ 46.63	14 20.01	- 0.139	21 7 38.63
Frid.	8	21 25 58.14	9.963	15 6 51.7	47.28	14 22.96	0.106	21 11 35.19
Sat.	9	21 29 56.85	9.930	14 47 49.3	47.91	14 25.11	0.074	21 15 31.74
SUN.	10	21 33 54.79	+ 9.898	14 28 32.0	+ 48.53	14 26.49	- 0.042	21 19 28.30
Mon.	11	21 37 51.96	9.866	14 9 0.1	49.12	14 27.11	- 0.010	21 23 24.85
Tues.	12	21 41 48.37	9.835	13 49 14.1	49.70	14 26.97	+ 0.021	21 27 21.40
Wed.	13	21 45 44.04	+ 9.804	13 29 14.3	+ 50.26	14 26.08	+ 0.052	21 31 17.96
Thur.	14	21 49 38.97	9.774	13 9 1.3	50.81	14 24.46	0.083	21 35 14.51
Frid.	15	21 53 33.17	9.744	12 48 35.4	51.34	14 22.10	0.113	21 39 11.07
Sat.	16	21 57 26.66	+ 9.714	12 27 57.0	+ 51.85	14 19.04	+ 0.143	21 43 7.62
SUN.	17	22 1 19.44	9.685	12 7 6.6	52.34	14 15.26	0.172	21 47 4.18
Mon.	18	22 5 11.52	9.656	11 46 4.7	52.81	14 10.79	0.201	21 51 0.73
Tues.	19	22 9 2.90	+ 9.627	11 24 51.6	+ 53.26	14 5.62	+ 0.230	21 54 57.28
Wed.	20	22 12 53.61	9.599	11 3 27.8	53.69	13 59.77	0.258	21 58 53.84
Thur.	21	22 16 43.64	9.571	10 41 53.8	54.11	13 53.25	0.285	22 2 50.39
Frid.	22	22 20 33.01	+ 9.544	10 20 10.0	+ 54.52	13 46.07	+ 0.313	22 6 46.94
Sat.	23	22 24 21.74	9.515	9 58 16.8	54.90	13 38.24	0.340	22 10 43.50
SUN.	24	22 28 9.82	9.491	9 36 14.6	55.27	13 29.77	0.366	22 14 40.05
Mon.	25	22 31 57.29	+ 9.465	9 14 3.8	+ 55.62	13 20.68	+ 0.391	22 18 36.60
Tues.	26	22 35 44.14	9.440	8 51 44.9	55.95	13 10.98	0.416	22 22 33.16
Wed.	27	22 39 30.41	9.416	8 29 18.2	56.27	13 0.70	0.440	22 26 29.71
Thur.	28	22 43 16.11	9.393	8 6 44.1	56.57	12 49.85	0.463	22 30 26.26
Frid.	29	22 47 1.26	+ 9.370	S. 7 44 2.9	+ 56.86	12 38.44	+ 0.486	22 34 22.82

NOTE.—The semi-diameter for mean noon may be assumed the same as that for apparent noon.
The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

Diff. for 1 Hour,
+ 9^s.8565.
(Table III.)

AT GREENWICH MEAN NOON.								
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.			
		λ	λ'					
		$^{\circ}$ $'$ $''$	$'$ $''$	$''$	$''$			h m s
1	32	311 58 42.2	58 21.8	152.15	— 0.38	9.9936522	+26.6	3 15 28.58
2	33	312 59 33.4	59 12.8	152.10	0.46	9.9937174	27.7	3 11 32.68
3	34	314 0 23.1	0 2.3	152.05	0.52	9.9937850	28.7	3 7 36.77
4	35	315 1 11.7	0 50.8	152.00	— 0.54	9.9938551	+29.7	3 3 40.86
5	36	316 1 59.3	1 38.2	151.96	0.52	9.9939276	30.7	2 59 44.95
6	37	317 2 45.6	2 24.5	151.91	0.50	9.9940025	31.7	2 55 49.04
7	38	318 3 30.9	3 9.7	151.87	— 0.43	9.9940796	+32.6	2 51 53.13
8	39	319 4 15.1	3 53.7	151.82	0.36	9.9941590	33.4	2 47 57.22
9	40	320 4 58.2	4 36.6	151.77	0.26	9.9942403	34.2	2 44 1.31
10	41	321 5 40.2	5 18.5	151.72	— 0.15	9.9943237	+35.0	2 40 5.40
11	42	322 6 21.0	5 59.2	151.68	— 0.02	9.9944089	35.8	2 36 9.50
12	43	323 7 0.8	6 38.8	151.63	+ 0.10	9.9944958	36.5	2 32 13.59
13	44	324 7 39.3	7 17.3	151.58	+ 0.23	9.9945842	+37.2	2 28 17.68
14	45	325 8 16.7	7 54.6	151.53	0.35	9.9946741	37.7	2 24 21.77
15	46	326 8 52.9	8 30.6	151.48	0.46	9.9947654	38.2	2 20 25.86
16	47	327 9 27.8	9 5.4	151.42	+ 0.54	9.9948577	+38.7	2 16 29.96
17	48	328 10 1.3	9 38.8	151.36	0.60	9.9949510	39.1	2 12 34.05
18	49	329 10 33.4	10 10.8	151.30	0.62	9.9950453	39.4	2 8 38.14
19	50	330 11 3.9	10 41.2	151.24	+ 0.61	9.9951403	+39.7	2 4 42.23
20	51	331 11 32.8	11 10.0	151.17	0.59	9.9952360	40.0	2 0 46.32
21	52	332 12 0.0	11 37.1	151.10	0.52	9.9953326	40.4	1 56 50.42
22	53	333 12 25.4	12 2.3	151.02	+ 0.44	9.9954300	+40.8	1 52 54.51
23	54	334 12 48.8	12 25.7	150.94	0.33	9.9955282	41.2	1 48 58.60
24	55	335 13 10.3	12 47.0	150.85	0.20	9.9956275	41.6	1 45 2.69
25	56	336 13 29.7	13 6.4	150.77	+ 0.09	9.9957278	+42.0	1 41 6.79
26	57	337 13 47.1	13 23.7	150.68	— 0.05	9.9958293	42.6	1 37 10.88
27	58	338 14 2.5	13 39.0	150.60	0.18	9.9959322	43.2	1 33 14.97
28	59	339 14 15.8	13 52.2	150.51	0.27	9.9960365	43.8	1 29 19.07
29	60	340 14 27.0	14 3.3	150.43	— 0.35	9.9961422	+44.4	1 25 23.16
NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0 ^d .0 of the Besselian fictitious year.								
Diff. for 1 Hour, —9 ^s .8296. (Table II.)								

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	
	"	"	"	"	"	"	h m	m	
1	15 34.9	15 30.9	57 4.4	-1.20	56 49.8	-1.23	10 47.2	+2.16	11.9
2	15 26.8	15 22.7	56 34.9	1.25	56 19.8	1.26	11 37.5	2.04	12.9
3	15 18.6	15 14.5	56 4.7	1.26	55 49.6	1.24	12 25.1	1.93	13.9
4	15 10.5	15 6.6	55 34.9	-1.20	55 20.6	-1.16	13 10.4	+1.85	14.9
5	15 2.9	14 59.5	55 7.0	1.09	54 54.4	1.00	13 53.9	1.79	15.9
6	14 56.4	14 53.6	54 42.9	0.90	54 32.7	0.78	14 36.4	1.76	16.9
7	14 51.3	14 49.4	54 24.2	-0.63	54 17.5	-0.48	15 18.7	+1.77	17.9
8	14 48.1	14 47.4	54 12.7	-0.30	54 10.1	-0.12	16 1.4	1.80	18.9
9	14 47.3	14 47.9	54 9.8	+0.08	54 12.0	+0.28	16 45.2	1.86	19.9
10	14 49.2	14 51.2	54 16.7	+0.50	54 23.9	+0.71	17 30.8	+1.94	20.9
11	14 53.8	14 57.3	54 33.7	0.93	54 46.2	1.13	18 18.3	2.03	21.9
12	15 1.3	15 6.0	55 1.1	1.34	55 18.4	1.54	19 8.1	2.12	22.9
13	15 11.4	15 17.2	55 38.0	+1.71	55 59.6	+1.87	19 59.9	+2.19	23.9
14	15 23.6	15 30.3	56 22.9	2.00	56 47.6	2.10	20 53.0	2.23	24.9
15	15 37.3	15 44.4	57 13.3	2.16	57 39.4	2.18	21 46.9	2.25	25.9
16	15 51.5	15 58.5	58 5.5	+2.15	58 31.0	+2.07	22 40.9	+2.24	26.9
17	16 5.1	16 11.2	58 55.3	1.95	59 17.8	1.78	23 34.6	2.23	27.9
18	16 16.7	16 21.4	59 37.9	1.56	59 55.2	1.30	δ		28.9
19	16 25.2	16 28.0	60 9.2	+1.02	60 19.6	+0.71	0 27.8	+2.22	0.4
20	16 29.8	16 30.6	60 26.2	+0.39	60 29.0	+0.07	1 21.0	2.22	1.4
21	16 30.3	16 29.1	60 28.0	-0.23	60 23.4	-0.52	2 14.5	2.25	2.4
22	16 26.9	16 24.0	60 15.6	-0.77	60 4.8	-0.99	3 8.9	+2.29	3.4
23	16 20.4	16 16.3	59 51.7	1.18	59 36.5	1.33	4 4.4	2.34	4.4
24	16 11.7	16 6.9	59 19.8	1.43	59 2.0	1.51	5 0.9	2.37	5.4
25	16 1.9	15 56.7	58 43.6	-1.55	58 24.7	-1.57	5 58.0	+2.37	6.4
26	15 51.6	15 46.5	58 5.9	1.56	57 47.2	1.54	6 54.6	2.33	7.4
27	15 41.5	15 36.7	57 28.8	1.50	57 11.0	1.46	7 49.8	2.26	8.4
28	15 32.0	15 27.5	56 53.8	1.41	56 37.2	1.35	8 42.8	2.15	9.4
29	15 23.1	15 19.0	56 21.2	-1.30	56 6.0	-1.24	9 33.2	+2.04	10.4

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 1.					SUNDAY 3.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	7 8 26.61	2.2919	N. 18 48 4.7	5.833	0	8 53 28.29	2.0843	N. 12 30 6.9	9.528
1	7 10 44.00	2.2878	18 42 11.7	5.933	1	8 55 33.23	2.0803	12 20 33.7	9.571
2	7 13 1.15	2.2837	18 36 12.8	6.032	2	8 57 37.93	2.0763	12 10 57.4	9.630
3	7 15 18.05	2.2795	18 30 7.9	6.130	3	8 59 42.38	2.0722	12 1 18.1	9.680
4	7 17 34.69	2.2753	18 23 57.2	6.228	4	9 1 46.59	2.0682	11 51 35.8	9.729
5	7 19 51.08	2.2711	18 17 40.6	6.325	5	9 3 50.56	2.0642	11 41 50.6	9.777
6	7 22 7.22	2.2668	18 11 18.2	6.421	6	9 5 54.29	2.0603	11 32 2.6	9.824
7	7 24 23.10	2.2626	18 4 50.1	6.515	7	9 7 57.79	2.0563	11 22 11.7	9.871
8	7 26 38.73	2.2583	17 58 16.4	6.608	8	9 10 1.05	2.0524	11 12 18.1	9.916
9	7 28 54.10	2.2540	17 51 37.1	6.701	9	9 12 4.08	2.0486	11 2 21.8	9.960
10	7 31 9.21	2.2497	17 44 52.3	6.793	10	9 14 6.88	2.0448	10 52 22.9	10.003
11	7 33 24.06	2.2453	17 38 2.0	6.883	11	9 16 9.45	2.0408	10 42 21.5	10.045
12	7 35 38.65	2.2410	17 31 6.3	6.973	12	9 18 11.78	2.0370	10 32 17.5	10.087
13	7 37 52.98	2.2366	17 24 5.2	7.062	13	9 20 13.89	2.0334	10 22 11.1	10.127
14	7 40 7.04	2.2322	17 16 58.9	7.149	14	9 22 15.79	2.0298	10 12 2.3	10.167
15	7 42 20.84	2.2278	17 9 47.3	7.237	15	9 24 17.46	2.0260	10 1 51.1	10.205
16	7 44 34.38	2.2234	17 2 30.5	7.323	16	9 26 18.91	2.0223	9 51 37.7	10.242
17	7 46 47.65	2.2190	16 55 8.6	7.408	17	9 28 20.14	2.0187	9 41 22.1	10.278
18	7 49 0.66	2.2146	16 47 41.6	7.492	18	9 30 21.16	2.0153	9 31 4.2	10.314
19	7 51 13.40	2.2102	16 40 9.6	7.574	19	9 32 21.97	2.0118	9 20 44.4	10.349
20	7 53 25.88	2.2058	16 32 32.7	7.655	20	9 34 22.57	2.0083	9 10 22.4	10.382
21	7 55 38.09	2.2013	16 24 51.0	7.736	21	9 36 22.96	2.0048	8 59 58.5	10.414
22	7 57 50.03	2.1968	16 17 4.4	7.816	22	9 38 23.14	2.0013	8 49 32.7	10.447
23	8 0 1.71	2.1925	N. 16 9 13.1	7.894	23	9 40 23.12	1.9980	N. 8 39 4.9	10.478
SATURDAY 2.					MONDAY 4.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	8 2 13.13	2.1881	N. 16 1 17.1	7.972	0	9 42 22.90	1.9947	N. 8 28 35.4	10.507
1	8 4 24.28	2.1836	15 53 16.5	8.048	1	9 44 22.48	1.9913	8 18 4.1	10.537
2	8 6 35.16	2.1791	15 45 11.3	8.124	2	9 46 21.86	1.9881	8 7 31.0	10.565
3	8 8 45.77	2.1747	15 37 1.6	8.199	3	9 48 21.05	1.9849	7 56 56.3	10.593
4	8 10 56.12	2.1703	15 28 47.4	8.272	4	9 50 20.05	1.9817	7 46 19.9	10.619
5	8 13 6.21	2.1659	15 20 28.9	8.344	5	9 52 18.85	1.9785	7 35 42.0	10.644
6	8 15 16.03	2.1615	15 12 6.1	8.416	6	9 54 17.47	1.9755	7 25 2.6	10.669
7	8 17 25.59	2.1571	15 3 39.0	8.487	7	9 56 15.91	1.9725	7 14 21.7	10.693
8	8 19 34.88	2.1527	14 55 7.7	8.556	8	9 58 14.17	1.9694	7 3 39.4	10.717
9	8 21 43.91	2.1483	14 46 32.3	8.624	9	10 0 12.24	1.9664	6 52 55.7	10.738
10	8 23 52.67	2.1438	14 37 52.8	8.692	10	10 2 10.14	1.9635	6 42 10.8	10.759
11	8 26 1.17	2.1396	14 29 9.3	8.758	11	10 4 7.86	1.9606	6 31 24.6	10.779
12	8 28 9.42	2.1353	14 20 21.8	8.823	12	10 6 5.41	1.9578	6 20 37.3	10.798
13	8 30 17.40	2.1308	14 11 30.5	8.888	13	10 8 2.79	1.9550	6 9 48.8	10.817
14	8 32 25.12	2.1266	14 2 35.3	8.951	14	10 10 0.01	1.9523	5 58 59.2	10.835
15	8 34 32.59	2.1223	13 53 36.4	9.013	15	10 11 57.06	1.9495	5 48 8.6	10.853
16	8 36 39.79	2.1179	13 44 33.8	9.073	16	10 13 53.95	1.9468	5 37 16.9	10.869
17	8 38 46.74	2.1137	13 35 27.6	9.134	17	10 15 50.68	1.9443	5 26 24.3	10.884
18	8 40 53.43	2.1094	13 26 17.7	9.194	18	10 17 47.26	1.9417	5 15 30.8	10.898
19	8 42 59.87	2.1053	13 17 4.3	9.252	19	10 19 43.68	1.9391	5 4 36.5	10.912
20	8 45 6.06	2.1010	13 7 47.5	9.308	20	10 21 39.95	1.9367	4 53 41.4	10.925
21	8 47 11.99	2.0968	12 58 27.3	9.364	21	10 23 36.08	1.9343	4 42 45.5	10.938
22	8 49 17.67	2.0927	12 49 3.8	9.419	22	10 25 32.06	1.9318	4 31 48.9	10.948
23	8 51 23.11	2.0885	12 39 37.0	9.474	23	10 27 27.90	1.9294	4 20 51.7	10.958
24	8 53 28.29	2.0843	N. 12 30 6.9	9.528	24	10 29 23.59	1.9271	N. 4 9 53.9	10.968

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 5.					THURSDAY 7.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	10 29 23.59	1.9271	N. 4 9 53.9	10.968	0	12 0 8.92	1.8728	S. 4 33 46.2	10.538
1	10 31 19.15	1.9249	3 58 55.5	10.978	1	12 2 1.29	1.8728	4 44 20.8	10.565
2	10 33 14.58	1.9227	3 47 56.6	10.985	2	12 3 53.66	1.8730	4 54 54.0	10.540
3	10 35 9.87	1.9205	3 36 57.3	10.993	3	12 5 46.05	1.8732	5 5 25.6	10.514
4	10 37 5.04	1.9184	3 25 57.5	10.999	4	12 7 38.44	1.8733	5 15 55.7	10.489
5	10 39 0.08	1.9163	3 14 57.4	11.005	5	12 9 30.85	1.8736	5 26 24.3	10.463
6	10 40 55.00	1.9143	3 3 56.9	11.011	6	12 11 23.27	1.8738	5 36 51.3	10.436
7	10 42 49.80	1.9123	2 52 56.1	11.014	7	12 13 15.71	1.8742	5 47 16.6	10.408
8	10 44 44.48	1.9104	2 41 55.2	11.018	8	12 15 8.17	1.8745	5 57 40.3	10.381
9	10 46 39.05	1.9086	2 30 54.0	11.021	9	12 17 0.65	1.8749	6 8 2.3	10.352
10	10 48 33.51	1.9058	2 19 52.7	11.023	10	12 18 53.16	1.8755	6 18 22.5	10.323
11	10 50 27.86	1.9049	2 8 51.3	11.023	11	12 20 45.71	1.8760	6 28 41.0	10.293
12	10 52 22.10	1.9032	1 57 49.9	11.023	12	12 22 38.28	1.8765	6 38 57.6	10.262
13	10 54 16.24	1.9015	1 46 48.5	11.024	13	12 24 30.89	1.8772	6 49 12.4	10.231
14	10 56 10.28	1.8998	1 35 47.0	11.023	14	12 26 23.54	1.8778	6 59 25.3	10.199
15	10 58 4.22	1.8983	1 24 45.7	11.021	15	12 28 16.23	1.8785	7 9 36.3	10.167
16	10 59 58.07	1.8967	1 13 44.5	11.019	16	12 30 8.96	1.8793	7 19 45.3	10.134
17	11 1 51.83	1.8953	1 2 43.4	11.016	17	12 32 1.74	1.8801	7 29 52.4	10.101
18	11 3 45.50	1.8938	0 51 42.6	11.012	18	12 33 54.57	1.8809	7 39 57.4	10.067
19	11 5 39.09	1.8924	0 40 42.0	11.008	19	12 35 47.45	1.8818	7 50 0.4	10.033
20	11 7 32.59	1.8910	0 29 41.6	11.003	20	12 37 40.38	1.8828	8 0 1.3	9.998
21	11 9 26.01	1.8898	0 18 41.6	10.997	21	12 39 33.38	1.8838	8 10 0.1	9.962
22	11 11 19.36	1.8885	N. 0 7 42.0	10.990	22	12 41 26.43	1.8847	8 19 56.7	9.925
23	11 13 12.63	1.8873	S. 0 3 17.2	10.983	23	12 43 19.54	1.8858	S. 8 29 51.1	9.888
WEDNESDAY 6.					FRIDAY 8.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	11 15 5.83	1.8861	S. 0 14 16.0	10.975	0	12 45 12.72	1.8869	S. 8 39 43.3	9.851
1	11 16 58.96	1.8850	0 25 14.2	10.967	1	12 47 5.97	1.8881	8 49 33.2	9.813
2	11 18 52.03	1.8840	0 36 12.0	10.958	2	12 48 59.29	1.8893	8 59 20.9	9.775
3	11 20 45.04	1.8829	0 47 9.1	10.947	3	12 50 52.68	1.8905	9 9 6.2	9.736
4	11 22 37.98	1.8819	0 58 5.6	10.937	4	12 52 46.15	1.8918	9 18 49.2	9.696
5	11 24 30.87	1.8811	1 9 1.5	10.925	5	12 54 39.70	1.8931	9 28 29.7	9.655
6	11 26 23.71	1.8802	1 19 56.6	10.913	6	12 56 33.32	1.8944	9 38 7.8	9.615
7	11 28 16.49	1.8793	1 30 51.0	10.901	7	12 58 27.03	1.8959	9 47 43.5	9.574
8	11 30 9.23	1.8786	1 41 44.7	10.888	8	13 0 20.83	1.8974	9 57 16.7	9.532
9	11 32 1.92	1.8778	1 52 37.5	10.873	9	13 2 14.72	1.8988	10 6 47.3	9.489
10	11 33 54.57	1.8772	2 3 29.5	10.859	10	13 4 8.69	1.9003	10 16 15.4	9.447
11	11 35 47.18	1.8766	2 14 20.6	10.844	11	13 6 2.76	1.9020	10 25 40.9	9.403
12	11 37 39.76	1.8760	2 25 10.8	10.828	12	13 7 56.93	1.9037	10 35 3.7	9.358
13	11 39 32.30	1.8755	2 36 0.0	10.812	13	13 9 51.20	1.9053	10 44 23.9	9.313
14	11 41 24.82	1.8750	2 46 48.2	10.794	14	13 11 45.56	1.9069	10 53 41.3	9.268
15	11 43 17.30	1.8745	2 57 35.3	10.777	15	13 13 40.03	1.9088	11 2 56.0	9.222
16	11 45 9.76	1.8742	3 8 21.4	10.758	16	13 15 34.61	1.9106	11 12 7.9	9.176
17	11 47 2.20	1.8738	3 19 6.3	10.739	17	13 17 29.30	1.9123	11 21 17.1	9.129
18	11 48 54.62	1.8736	3 29 50.1	10.720	18	13 19 24.09	1.9142	11 30 23.4	9.081
19	11 50 47.03	1.8733	3 40 32.7	10.699	19	13 21 19.00	1.9162	11 39 26.8	9.033
20	11 52 39.42	1.8731	3 51 14.0	10.678	20	13 23 14.03	1.9181	11 48 27.3	8.983
21	11 54 31.80	1.8730	4 1 54.1	10.657	21	13 25 9.17	1.9201	11 57 24.8	8.934
22	11 56 24.18	1.8729	4 12 32.8	10.634	22	13 27 4.44	1.9222	12 6 19.4	8.885
23	11 58 16.55	1.8728	4 23 10.2	10.612	23	13 28 59.83	1.9242	12 15 11.0	8.834
24	12 0 8.92	1.8728	S. 4 33 46.2	10.588	24	13 30 55.34	1.9263	S. 12 23 59.5	8.783

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 9.					MONDAY 11.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	13 30 55.34	1.9263	S. 12 23 59.5	8.783	0	15 6 25.99	2.0536	S. 18 15 44.3	5.645
1	13 32 50.98	1.9284	12 32 44.9	8.732	1	15 8 29.91	2.0670	18 21 20.6	5.564
2	13 34 46.75	1.9306	12 41 27.3	8.680	2	15 10 34.03	2.0703	18 26 52.0	5.483
3	13 36 42.65	1.9328	12 50 6.5	8.627	3	15 12 38.35	2.0738	18 32 18.6	5.402
4	13 38 38.69	1.9351	12 58 42.5	8.573	4	15 14 42.88	2.0773	18 37 40.3	5.320
5	13 40 34.86	1.9373	13 7 15.3	8.519	5	15 16 47.62	2.0807	18 42 57.0	5.238
6	13 42 31.17	1.9397	13 15 44.8	8.465	6	15 18 52.56	2.0841	18 48 8.8	5.155
7	13 44 27.62	1.9421	13 24 11.1	8.410	7	15 20 57.71	2.0876	18 53 15.6	5.071
8	13 46 24.22	1.9445	13 32 34.0	8.353	8	15 23 3.07	2.0910	18 58 17.3	4.987
9	13 48 20.96	1.9468	13 40 53.5	8.298	9	15 25 8.63	2.0944	19 3 14.0	4.902
10	13 50 17.84	1.9493	13 49 9.7	8.242	10	15 27 14.40	2.0979	19 8 5.5	4.816
11	13 52 14.88	1.9518	13 57 22.5	8.184	11	15 29 20.38	2.1013	19 12 51.9	4.730
12	13 54 12.06	1.9543	14 5 31.8	8.126	12	15 31 26.56	2.1048	19 17 33.1	4.643
13	13 56 9.40	1.9569	14 13 37.6	8.068	13	15 33 32.96	2.1083	19 22 9.0	4.555
14	13 58 6.89	1.9595	14 21 39.9	8.008	14	15 35 39.56	2.1118	19 26 39.7	4.467
15	14 0 4.54	1.9622	14 29 38.6	7.949	15	15 37 46.37	2.1153	19 31 5.1	4.378
16	14 2 2.35	1.9648	14 37 33.8	7.889	16	15 39 53.39	2.1188	19 35 25.1	4.289
17	14 4 0.32	1.9676	14 45 25.3	7.828	17	15 42 0.62	2.1223	19 39 39.8	4.200
18	14 5 58.46	1.9703	14 53 13.1	7.766	18	15 44 8.06	2.1258	19 43 49.1	4.109
19	14 7 56.76	1.9730	15 0 57.2	7.704	19	15 46 15.71	2.1292	19 47 52.9	4.018
20	14 9 55.22	1.9758	15 8 37.6	7.642	20	15 48 23.56	2.1326	19 51 51.2	3.926
21	14 11 53.85	1.9786	15 16 14.2	7.578	21	15 50 31.62	2.1360	19 55 44.0	3.834
22	14 13 52.65	1.9814	15 23 47.0	7.514	22	15 52 39.88	2.1394	19 59 31.3	3.742
23	14 15 51.62	1.9843	S. 15 31 15.9	7.450	23	15 54 48.35	2.1429	S. 20 3 13.0	3.648
SUNDAY 10.					TUESDAY 12.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	14 17 50.77	1.9873	S. 15 38 41.0	7.385	0	15 56 57.03	2.1463	S. 20 6 49.0	3.553
1	14 19 50.09	1.9902	15 46 2.1	7.319	1	15 59 5.91	2.1498	20 10 19.4	3.459
2	14 21 49.59	1.9932	15 53 19.3	7.253	2	16 1 15.00	2.1533	20 13 44.1	3.364
3	14 23 49.27	1.9961	16 0 32.5	7.187	3	16 3 24.30	2.1567	20 17 3.1	3.268
4	14 25 49.12	1.9991	16 7 41.7	7.119	4	16 5 33.80	2.1600	20 20 16.3	3.172
5	14 27 49.16	2.0022	16 14 46.8	7.052	5	16 7 43.50	2.1633	20 23 23.7	3.075
6	14 29 49.38	2.0052	16 21 47.9	6.983	6	16 9 53.40	2.1667	20 26 25.3	2.978
7	14 31 49.78	2.0083	16 28 44.8	6.913	7	16 12 3.51	2.1701	20 29 21.0	2.880
8	14 33 50.37	2.0114	16 35 37.5	6.843	8	16 14 13.81	2.1734	20 32 10.9	2.782
9	14 35 51.15	2.0145	16 42 26.0	6.773	9	16 16 24.32	2.1768	20 34 54.8	2.682
10	14 37 52.11	2.0176	16 49 10.3	6.703	10	16 18 35.03	2.1802	20 37 32.7	2.582
11	14 39 53.26	2.0208	16 55 50.3	6.630	11	16 20 45.94	2.1834	20 40 4.6	2.482
12	14 41 54.60	2.0240	17 2 25.9	6.558	12	16 22 57.04	2.1867	20 42 30.5	2.381
13	14 43 56.14	2.0272	17 8 57.2	6.486	13	16 25 8.34	2.1899	20 44 50.3	2.280
14	14 45 57.86	2.0303	17 15 24.2	6.413	14	16 27 19.83	2.1932	20 47 4.1	2.178
15	14 47 59.78	2.0337	17 21 46.7	6.338	15	16 29 31.52	2.1963	20 49 11.7	2.075
16	14 50 1.90	2.0370	17 28 4.7	6.263	16	16 31 43.39	2.1995	20 51 13.1	1.973
17	14 52 4.22	2.0403	17 34 18.3	6.188	17	16 33 55.46	2.2028	20 53 8.4	1.869
18	14 54 6.73	2.0435	17 40 27.3	6.113	18	16 36 7.72	2.2059	20 54 57.4	1.765
19	14 56 9.44	2.0468	17 46 31.8	6.037	19	16 38 20.17	2.2090	20 56 40.2	1.661
20	14 58 12.35	2.0502	17 52 31.7	5.959	20	16 40 32.80	2.2121	20 58 16.7	1.556
21	15 0 15.46	2.0535	17 58 26.9	5.881	21	16 42 45.62	2.2152	20 59 46.9	1.450
22	15 2 18.77	2.0568	18 4 17.4	5.803	22	16 44 58.62	2.2182	21 1 10.7	1.344
23	15 4 22.28	2.0602	18 10 3.2	5.724	23	16 47 11.80	2.2212	21 2 28.2	1.238
24	15 6 25.99	2.0636	S. 18 15 44.3	5.645	24	16 49 25.16	2.2242	S. 21 3 39.2	1.130

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 13.					FRIDAY 15.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	16 49 25.16	2.2242	S. 21 3 39.2	1.130	0	18 38 56.12	2.3228	S. 19 47 42.7	4.384
1	16 51 38.70	2.2272	21 4 43.8	1.023	1	18 41 15.52	2.3238	19 43 16.1	4.503
2	16 53 52.42	2.2301	21 5 42.0	0.916	2	18 43 34.97	2.3246	19 38 42.4	4.621
3	16 56 6.31	2.2330	21 6 33.7	0.807	3	18 45 54.47	2.3255	19 34 1.6	4.739
4	16 58 20.38	2.2359	21 7 18.8	0.698	4	18 48 14.03	2.3263	19 29 13.7	4.857
5	17 0 34.62	2.2388	21 7 57.4	0.589	5	18 50 33.63	2.3271	19 24 18.8	4.973
6	17 2 49.03	2.2416	21 8 29.5	0.479	6	18 52 53.28	2.3279	19 19 16.9	5.091
7	17 5 3.61	2.2443	21 8 54.9	0.368	7	18 55 12.98	2.3286	19 14 7.9	5.208
8	17 7 18.35	2.2470	21 9 13.7	0.258	8	18 57 32.71	2.3292	19 8 51.9	5.325
9	17 9 33.25	2.2497	21 9 25.9	0.148	9	18 59 52.48	2.3298	19 3 28.9	5.442
10	17 11 48.31	2.2524	21 9 31.4	-0.036	10	19 2 12.29	2.3304	18 57 58.9	5.558
11	17 14 3.54	2.2551	21 9 30.2	+0.076	11	19 4 32.13	2.3309	18 52 21.9	5.674
12	17 16 18.92	2.2577	21 9 22.3	0.188	12	19 6 52.00	2.3314	18 46 38.0	5.790
13	17 18 34.46	2.2602	21 9 7.7	0.300	13	19 9 11.90	2.3318	18 40 47.1	5.906
14	17 20 50.14	2.2627	21 8 46.3	0.413	14	19 11 31.82	2.3323	18 34 49.3	6.022
15	17 23 5.98	2.2652	21 8 18.1	0.527	15	19 13 51.77	2.3327	18 28 44.5	6.137
16	17 25 21.96	2.2676	21 7 43.1	0.640	16	19 16 11.74	2.3330	18 22 32.9	6.251
17	17 27 38.09	2.2701	21 7 1.3	0.753	17	19 18 31.73	2.3333	18 16 14.4	6.365
18	17 29 54.37	2.2724	21 6 12.7	0.868	18	19 20 51.73	2.3334	18 9 49.1	6.479
19	17 32 10.78	2.2747	21 5 17.2	0.983	19	19 23 11.74	2.3337	18 3 16.9	6.593
20	17 34 27.33	2.2769	21 4 14.8	1.098	20	19 25 31.77	2.3338	17 56 37.9	6.707
21	17 36 44.01	2.2792	21 3 5.5	1.213	21	19 27 51.80	2.3339	17 49 52.1	6.819
22	17 39 0.83	2.2814	21 1 49.3	1.328	22	19 30 11.84	2.3341	17 42 59.6	6.932
23	17 41 17.78	2.2836	S. 21 0 26.2	1.443	23	19 32 31.89	2.3342	S. 17 36 0.3	7.044
THURSDAY 14.					SATURDAY 16.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	17 43 34.86	2.2857	S. 20 58 56.2	1.558	0	19 34 51.94	2.3342	S. 17 28 54.3	7.155
1	17 45 52.06	2.2878	20 57 19.2	1.675	1	19 37 11.99	2.3342	17 21 41.7	7.266
2	17 48 9.39	2.2898	20 55 35.2	1.792	2	19 39 32.04	2.3342	17 14 22.4	7.377
3	17 50 26.84	2.2918	20 53 44.2	1.908	3	19 41 52.09	2.3341	17 6 56.5	7.487
4	17 52 44.40	2.2937	20 51 46.2	2.025	4	19 44 12.13	2.3339	16 59 24.0	7.596
5	17 55 2.08	2.2956	20 49 41.2	2.143	5	19 46 32.16	2.3338	16 51 45.0	7.704
6	17 57 19.87	2.2974	20 47 29.1	2.260	6	19 48 52.19	2.3337	16 43 59.5	7.813
7	17 59 37.77	2.2992	20 45 10.0	2.377	7	19 51 12.20	2.3334	16 36 7.5	7.920
8	18 1 55.77	2.3009	20 42 43.9	2.494	8	19 53 32.20	2.3332	16 28 9.1	8.027
9	18 4 13.88	2.3027	20 40 10.7	2.612	9	19 55 52.19	2.3330	16 20 4.3	8.133
10	18 6 32.09	2.3043	20 37 30.5	2.729	10	19 58 12.16	2.3327	16 11 53.1	8.239
11	18 8 50.40	2.3060	20 34 43.2	2.848	11	20 0 32.11	2.3323	16 3 35.6	8.344
12	18 11 8.81	2.3076	20 31 48.8	2.966	12	20 2 52.04	2.3320	15 55 11.8	8.448
13	18 13 27.31	2.3091	20 28 47.3	3.084	13	20 5 11.95	2.3317	15 46 41.8	8.553
14	18 15 45.90	2.3106	20 25 38.7	3.202	14	20 7 31.84	2.3313	15 38 5.5	8.656
15	18 18 4.58	2.3120	20 22 23.1	3.320	15	20 9 51.71	2.3309	15 29 23.1	8.758
16	18 20 23.34	2.3133	20 19 0.3	3.439	16	20 12 11.55	2.3304	15 20 34.6	8.859
17	18 22 42.18	2.3147	20 15 30.4	3.557	17	20 14 31.36	2.3300	15 11 40.0	8.960
18	18 25 1.10	2.3159	20 11 53.5	3.675	18	20 16 51.15	2.3296	15 2 39.4	9.059
19	18 27 20.09	2.3172	20 8 9.4	3.794	19	20 19 10.91	2.3291	14 53 32.9	9.158
20	18 29 39.16	2.3184	20 4 18.2	3.912	20	20 21 30.64	2.3286	14 44 20.4	9.257
21	18 31 58.30	2.3196	20 0 20.0	4.029	21	20 23 50.34	2.3280	14 35 2.0	9.355
22	18 34 17.51	2.3207	19 56 14.7	4.148	22	20 26 10.00	2.3275	14 25 37.8	9.452
23	18 36 36.78	2.3218	19 52 2.2	4.267	23	20 28 29.64	2.3270	14 16 7.8	9.548
24	18 38 56.12	2.3228	S. 19 47 42.7	4.384	24	20 30 49.24	2.3264	S. 14 6 32.1	9.643

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 17.					TUESDAY 19.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	20 30 49.24	2.3264	S. 14 6 32.1	9.643	0	22 21 47.10	2.3003	S. 4 54 30.3	12.889
1	20 33 8.81	2.3258	13 56 50.7	9.737	1	22 24 5.11	2.3000	4 41 35.9	12.924
2	20 35 28.34	2.3253	13 47 3.7	9.829	2	22 26 23.10	2.2998	4 28 39.4	12.959
3	20 37 47.84	2.3247	13 37 11.2	9.921	3	22 28 41.09	2.2998	4 15 40.8	12.992
4	20 40 7.30	2.3240	13 27 13.2	10.013	4	22 30 59.07	2.2997	4 2 40.4	13.022
5	20 42 26.72	2.3233	13 17 9.7	10.103	5	22 33 17.05	2.2996	3 49 38.2	13.052
6	20 44 46.10	2.3228	13 7 0.8	10.193	6	22 35 35.02	2.2995	3 36 34.2	13.080
7	20 47 5.45	2.3222	12 56 46.6	10.281	7	22 37 52.99	2.2995	3 23 28.6	13.107
8	20 49 24.76	2.3214	12 46 27.1	10.368	8	22 40 10.96	2.2995	3 10 21.4	13.132
9	20 51 44.02	2.3208	12 36 2.4	10.455	9	22 42 28.93	2.2995	2 57 12.8	13.155
10	20 54 3.25	2.3202	12 25 32.5	10.541	10	22 44 46.90	2.2996	2 44 2.8	13.177
11	20 56 22.44	2.3195	12 14 57.5	10.624	11	22 47 4.88	2.2997	2 30 51.6	13.198
12	20 58 41.59	2.3188	12 4 17.6	10.707	12	22 49 22.86	2.2998	2 17 39.1	13.217
13	21 1 0.70	2.3182	11 53 32.7	10.789	13	22 51 40.85	2.2999	2 4 25.6	13.233
14	21 3 19.77	2.3175	11 42 42.9	10.871	14	22 53 58.85	2.3001	1 51 11.1	13.250
15	21 5 38.80	2.3168	11 31 48.2	10.951	15	22 56 16.86	2.3003	1 37 55.6	13.264
16	21 7 57.79	2.3162	11 20 48.8	11.029	16	22 58 34.89	2.3006	1 24 39.4	13.277
17	21 10 16.74	2.3155	11 9 44.7	11.107	17	23 0 52.93	2.3008	1 11 22.4	13.288
18	21 12 35.65	2.3148	10 58 35.9	11.184	18	23 3 10.99	2.3012	0 58 4.8	13.298
19	21 14 54.52	2.3142	10 47 22.6	11.259	19	23 5 29.07	2.3015	0 44 46.7	13.306
20	21 17 13.35	2.3135	10 36 4.8	11.333	20	23 7 47.17	2.3019	0 31 28.1	13.313
21	21 19 32.14	2.3128	10 24 42.6	11.407	21	23 10 5.30	2.3023	0 18 9.2	13.318
22	21 21 50.89	2.3123	10 13 16.0	11.479	22	23 12 23.45	2.3028	S. 0 4 50.0	13.322
23	21 24 9.61	2.3116	S. 10 1 45.1	11.549	23	23 14 41.63	2.3032	N. 0 8 29.4	13.323
MONDAY 18.					WEDNESDAY 20.				
0	21 26 28.28	2.3109	S. 9 50 10.1	11.618	0	23 16 59.83	2.3037	N. 0 21 48.8	13.323
1	21 28 46.92	2.3103	9 38 30.9	11.687	1	23 19 18.07	2.3043	0 35 8.2	13.323
2	21 31 5.52	2.3098	9 26 47.7	11.753	2	23 21 36.34	2.3048	0 48 27.5	13.320
3	21 33 24.09	2.3092	9 15 0.5	11.819	3	23 23 54.64	2.3054	1 1 46.6	13.316
4	21 35 42.62	2.3085	9 3 9.4	11.883	4	23 26 12.99	2.3061	1 15 5.4	13.310
5	21 38 1.11	2.3079	8 51 14.5	11.947	5	23 28 31.37	2.3067	1 28 23.8	13.303
6	21 40 19.57	2.3074	8 39 15.8	12.009	6	23 30 49.79	2.3073	1 41 41.7	13.293
7	21 42 38.00	2.3069	8 27 13.4	12.069	7	23 33 8.25	2.3081	1 54 59.0	13.283
8	21 44 56.40	2.3063	8 15 7.5	12.128	8	23 35 26.76	2.3089	2 8 15.7	13.272
9	21 47 14.76	2.3058	8 2 58.0	12.187	9	23 37 45.32	2.3097	2 21 31.6	13.258
10	21 49 33.09	2.3053	7 50 45.1	12.243	10	23 40 3.92	2.3105	2 34 46.6	13.242
11	21 51 51.39	2.3048	7 38 28.9	12.298	11	23 42 22.58	2.3113	2 48 0.6	13.225
12	21 54 9.66	2.3043	7 26 9.4	12.352	12	23 44 41.28	2.3122	3 1 13.6	13.208
13	21 56 27.90	2.3038	7 13 46.7	12.404	13	23 47 0.04	2.3132	3 14 25.5	13.188
14	21 58 46.12	2.3034	7 1 20.9	12.455	14	23 49 18.86	2.3141	3 27 36.1	13.166
15	22 1 4.31	2.3030	6 48 52.1	12.505	15	23 51 37.73	2.3151	3 40 45.4	13.143
16	22 3 22.48	2.3027	6 36 20.3	12.553	16	23 53 56.67	2.3162	3 53 53.3	13.119
17	22 5 40.63	2.3023	6 23 45.7	12.600	17	23 56 15.67	2.3172	4 6 59.7	13.092
18	22 7 58.75	2.3018	6 11 8.3	12.646	18	23 58 34.73	2.3182	4 20 4.4	13.064
19	22 10 16.85	2.3015	5 58 28.2	12.690	19	0 0 53.85	2.3193	4 33 7.4	13.036
20	22 12 34.93	2.3012	5 45 45.5	12.733	20	0 3 13.05	2.3205	4 46 8.7	13.006
21	22 14 52.99	2.3009	5 33 0.3	12.774	21	0 5 32.31	2.3216	4 59 8.1	12.973
22	22 17 11.04	2.3007	5 20 12.6	12.814	22	0 7 51.64	2.3228	5 12 5.5	12.939
23	22 19 29.08	2.3005	5 7 22.6	12.853	23	0 10 11.05	2.3241	5 25 0.8	12.904
24	22 21 47.10	2.3003	S. 4 54 30.3	12.889	24	0 12 30.53	2.3253	N. 5 37 54.0	12.868

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 21.					SATURDAY 23.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	12 30.53	2.3253	N. 5 37 54.0	12.868	2	5 57.66	2.4059	N. 14 46 3.5	9.465
1	0 14 50.09	2.3266	5 50 44.9	12.829	1	2 8 22.07	2.4077	14 55 28.4	9.363
2	0 17 9.72	2.3278	6 3 33.5	12.790	2	2 10 46.58	2.4094	15 4 47.1	9.261
3	0 19 29.43	2.3293	6 16 19.7	12.749	3	2 13 11.20	2.4112	15 13 59.7	9.158
4	0 21 49.23	2.3306	6 29 3.4	12.706	4	2 15 35.92	2.4128	15 23 6.1	9.055
5	0 24 9.10	2.3319	6 41 44.4	12.661	5	2 18 0.74	2.4145	15 32 6.3	8.950
6	0 26 29.06	2.3334	6 54 22.7	12.616	6	2 20 25.66	2.4162	15 41 0.1	8.843
7	0 28 49.11	2.3348	7 6 58.3	12.568	7	2 22 50.68	2.4178	15 49 47.5	8.737
8	0 31 9.24	2.3363	7 19 30.9	12.519	8	2 25 15.80	2.4195	15 58 28.5	8.629
9	0 33 29.47	2.3378	7 32 0.6	12.470	9	2 27 41.02	2.4210	16 7 3.0	8.520
10	0 35 49.78	2.3393	7 44 27.3	12.418	10	2 30 6.32	2.4225	16 15 30.9	8.410
11	0 38 10.18	2.3408	7 56 50.8	12.365	11	2 32 31.72	2.4242	16 23 52.2	8.300
12	0 40 30.68	2.3424	8 9 11.1	12.311	12	2 34 57.22	2.4257	16 32 6.9	8.189
13	0 42 51.27	2.3440	8 21 28.1	12.255	13	2 37 22.80	2.4271	16 40 14.9	8.077
14	0 45 11.96	2.3456	8 33 41.7	12.197	14	2 39 48.47	2.4286	16 48 16.1	7.963
15	0 47 32.74	2.3472	8 45 51.8	12.138	15	2 42 14.23	2.4300	16 56 10.5	7.849
16	0 49 53.62	2.3488	8 57 58.3	12.078	16	2 44 40.07	2.4313	17 3 58.0	7.735
17	0 52 14.60	2.3505	9 10 1.1	12.017	17	2 47 5.99	2.4327	17 11 38.7	7.620
18	0 54 35.68	2.3522	9 22 0.3	11.954	18	2 49 31.99	2.4340	17 19 12.4	7.503
19	0 56 56.86	2.3538	9 33 55.6	11.889	19	2 51 58.07	2.4353	17 26 39.1	7.387
20	0 59 18.14	2.3555	9 45 47.0	11.823	20	2 54 24.22	2.4365	17 33 58.8	7.269
21	1 1 39.52	2.3573	9 57 34.4	11.757	21	2 56 50.45	2.4378	17 41 11.4	7.150
22	1 4 1.01	2.3591	10 9 17.8	11.688	22	2 59 16.75	2.4389	17 48 16.8	7.031
23	1 6 22.61	2.3608	N. 10 20 57.0	11.618	23	3 1 43.12	2.4401	N. 17 55 15.1	6.912
FRIDAY 22.					SUNDAY 24.				
0	1 8 44.30	2.3624	N. 10 32 31.9	11.547	0	3 4 9.56	2.4412	N. 18 2 6.2	6.792
1	1 11 6.10	2.3642	10 44 2.6	11.474	1	3 6 36.06	2.4422	18 8 50.1	6.670
2	1 13 28.01	2.3661	10 55 28.8	11.400	2	3 9 2.62	2.4432	18 15 26.6	6.548
3	1 15 50.03	2.3679	11 6 50.6	11.326	3	3 11 29.24	2.4441	18 21 55.9	6.427
4	1 18 12.16	2.3697	11 18 7.9	11.249	4	3 13 55.91	2.4450	18 28 17.8	6.303
5	1 20 34.39	2.3715	11 29 20.5	11.171	5	3 16 22.64	2.4458	18 34 32.3	6.180
6	1 22 56.74	2.3733	11 40 28.4	11.093	6	3 18 49.41	2.4466	18 40 39.4	6.056
7	1 25 19.19	2.3751	11 51 31.6	11.013	7	3 21 16.23	2.4474	18 46 39.0	5.932
8	1 27 41.75	2.3769	12 2 29.9	10.931	8	3 23 43.10	2.4482	18 52 31.2	5.807
9	1 30 4.42	2.3788	12 13 23.3	10.848	9	3 26 10.01	2.4488	18 58 15.8	5.681
10	1 32 27.21	2.3807	12 24 11.6	10.763	10	3 28 36.96	2.4494	19 3 52.9	5.556
11	1 34 50.10	2.3824	12 34 54.9	10.679	11	3 31 3.94	2.4500	19 9 22.5	5.429
12	1 37 13.10	2.3843	12 45 33.1	10.593	12	3 33 30.96	2.4506	19 14 44.4	5.302
13	1 39 36.21	2.3862	12 56 6.0	10.505	13	3 35 58.01	2.4510	19 19 58.7	5.174
14	1 41 59.44	2.3880	13 6 33.7	10.416	14	3 38 25.08	2.4513	19 25 5.3	5.047
15	1 44 22.77	2.3898	13 16 55.9	10.325	15	3 40 52.17	2.4517	19 30 4.3	4.919
16	1 46 46.21	2.3917	13 27 12.7	10.234	16	3 43 19.28	2.4519	19 34 55.6	4.791
17	1 49 9.77	2.3935	13 37 24.0	10.143	17	3 45 46.40	2.4522	19 39 39.2	4.662
18	1 51 33.43	2.3953	13 47 29.8	10.049	18	3 48 13.54	2.4523	19 44 15.0	4.533
19	1 53 57.20	2.3971	13 57 29.9	9.954	19	3 50 40.68	2.4524	19 48 43.1	4.403
20	1 56 21.08	2.3988	14 7 24.3	9.858	20	3 53 7.83	2.4525	19 53 3.4	4.273
21	1 58 45.06	2.4007	14 17 12.9	9.762	21	3 55 34.98	2.4525	19 57 15.9	4.143
22	2 1 9.16	2.4025	14 26 55.7	9.664	22	3 58 2.13	2.4524	20 1 20.6	4.013
23	2 3 33.36	2.4042	14 36 32.6	9.565	23	4 0 29.27	2.4523	20 5 17.5	3.883
24	2 5 57.66	2.4059	N. 14 46 3.5	9.465	24	4 2 56.41	2.4522	N. 20 9 6.6	3.753

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 25.					WEDNESDAY 27.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	4 2 56.41	2.4522	N. 20 9 6.6	3.753	0	5 59 11.34	2.3674	N. 20 39 26.6	2.393
1	4 5 23.53	2.4518	20 12 47.8	3.622	1	6 1 33.29	2.3643	20 36 59.5	2.512
2	4 7 50.63	2.4515	20 16 21.2	3.491	2	6 3 55.05	2.3610	20 34 25.2	2.630
3	4 10 17.71	2.4512	20 19 46.7	3.360	3	6 6 16.61	2.3577	20 31 43.9	2.747
4	4 12 44.77	2.4507	20 23 4.4	3.228	4	6 8 37.97	2.3543	20 28 55.6	2.863
5	4 15 11.79	2.4501	20 26 14.1	3.097	5	6 10 59.13	2.3510	20 26 0.3	2.980
6	4 17 38.78	2.4496	20 29 16.0	2.966	6	6 13 20.09	2.3476	20 22 58.0	3.096
7	4 20 5.74	2.4490	20 32 10.0	2.835	7	6 15 40.84	2.3441	20 19 48.3	3.210
8	4 22 32.66	2.4483	20 34 56.2	2.703	8	6 18 1.38	2.3406	20 16 32.8	3.324
9	4 24 59.54	2.4475	20 37 34.4	2.572	9	6 20 21.71	2.3370	20 13 9.9	3.438
10	4 27 26.36	2.4466	20 40 4.8	2.440	10	6 22 41.82	2.3333	20 9 40.3	3.550
11	4 29 53.13	2.4458	20 42 27.2	2.308	11	6 25 1.71	2.3298	20 6 3.9	3.662
12	4 32 19.85	2.4448	20 44 41.8	2.178	12	6 27 21.39	2.3262	20 2 20.9	3.773
13	4 34 46.51	2.4437	20 46 48.5	2.046	13	6 29 40.85	2.3224	19 58 31.2	3.884
14	4 37 13.10	2.4426	20 48 47.3	1.914	14	6 32 0.08	2.3187	19 54 34.8	3.994
15	4 39 39.62	2.4414	20 50 38.2	1.783	15	6 34 19.09	2.3149	19 50 31.9	4.103
16	4 42 6.07	2.4402	20 52 21.2	1.652	16	6 36 37.87	2.3111	19 46 22.5	4.211
17	4 44 32.44	2.4389	20 53 56.4	1.521	17	6 38 56.42	2.3073	19 42 6.6	4.318
18	4 46 58.74	2.4376	20 55 23.7	1.390	18	6 41 14.74	2.3034	19 37 44.3	4.424
19	4 49 24.95	2.4361	20 56 43.2	1.259	19	6 43 32.83	2.2995	19 33 15.7	4.530
20	4 51 51.07	2.4346	20 57 54.8	1.128	20	6 45 50.68	2.2956	19 28 40.7	4.636
21	4 54 17.10	2.4331	20 58 58.6	0.998	21	6 48 8.30	2.2917	19 23 59.4	4.740
22	4 56 43.04	2.4315	20 59 54.5	0.867	22	6 50 25.68	2.2877	19 19 11.9	4.843
23	4 59 8.88	2.4298	N. 21 0 42.6	0.738	23	6 52 42.82	2.2836	N. 19 14 18.3	4.945
TUESDAY 26.					THURSDAY 28.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	5 1 34.61	2.4279	N. 21 1 23.0	0.608	0	6 54 59.71	2.2796	N. 19 9 18.5	5.048
1	5 4 0.23	2.4261	21 1 55.6	0.478	1	6 57 16.37	2.2756	19 4 12.6	5.148
2	5 6 25.74	2.4243	21 2 20.4	0.348	2	6 59 32.78	2.2715	18 59 0.7	5.248
3	5 8 51.14	2.4223	21 2 37.4	0.219	3	7 1 48.95	2.2674	18 53 42.8	5.348
4	5 11 16.42	2.4203	21 2 46.7	+0.091	4	7 4 4.87	2.2633	18 48 19.0	5.446
5	5 13 41.57	2.4182	21 2 48.3	-0.038	5	7 6 20.55	2.2593	18 42 49.3	5.544
6	5 16 6.60	2.4161	21 2 42.2	0.165	6	7 8 35.98	2.2552	18 37 13.7	5.641
7	5 18 31.50	2.4138	21 2 28.5	0.293	7	7 10 51.17	2.2510	18 31 32.4	5.736
8	5 20 56.26	2.4116	21 2 7.1	0.420	8	7 13 6.10	2.2468	18 25 45.4	5.831
9	5 23 20.89	2.4092	21 1 38.1	0.547	9	7 15 20.78	2.2426	18 19 52.7	5.926
10	5 25 45.37	2.4068	21 1 1.5	0.673	10	7 17 35.21	2.2384	18 13 54.3	6.019
11	5 28 9.71	2.4044	21 0 17.3	0.799	11	7 19 49.39	2.2343	18 7 50.4	6.111
12	5 30 33.90	2.4019	20 59 25.6	0.925	12	7 22 3.32	2.2301	18 1 41.0	6.203
13	5 32 57.94	2.3993	20 58 26.3	1.050	13	7 24 17.00	2.2258	17 55 26.1	6.293
14	5 35 21.82	2.3967	20 57 19.6	1.174	14	7 26 30.42	2.2216	17 49 5.8	6.383
15	5 37 45.54	2.3940	20 56 5.4	1.298	15	7 28 43.59	2.2174	17 42 40.1	6.473
16	5 40 9.10	2.3913	20 54 43.8	1.423	16	7 30 56.51	2.2132	17 36 9.1	6.560
17	5 42 32.49	2.3885	20 53 14.7	1.546	17	7 33 9.17	2.2088	17 29 32.9	6.647
18	5 44 55.72	2.3857	20 51 38.3	1.668	18	7 35 21.57	2.2046	17 22 51.5	6.733
19	5 47 18.77	2.3828	20 49 54.5	1.791	19	7 37 33.72	2.2004	17 16 4.9	6.818
20	5 49 41.65	2.3798	20 48 3.4	1.912	20	7 39 45.62	2.1962	17 9 13.3	6.903
21	5 52 4.35	2.3768	20 46 5.1	2.033	21	7 41 57.26	2.1919	17 2 16.6	6.986
22	5 54 26.87	2.3738	20 43 59.5	2.154	22	7 44 8.65	2.1877	16 55 15.0	7.068
23	5 56 49.20	2.3706	20 41 46.6	2.274	23	7 46 19.78	2.1834	16 48 8.4	7.150
24	5 59 11.34	2.3674	N. 20 39 26.6	2.393	24	7 48 30.66	2.1793	N. 16 40 57.0	7.231

PHASES OF THE MOON.

									d	h	m
○ Full Moon	.	.	.	.	.	.	.	Feb.	3	3	29.8
☾ Last Quarter	.	.	.	.	.	.	.		11	6	12.0
● New Moon	.	.	.	.	.	.	.		18	14	45.2
☽ First Quarter	.	.	.	.	.	.	.		25	6	38.2

☾ Apogee	Feb. 8	19.4
☾ Perigee	20	14.7

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	<i>α</i> Arietis	W.	70 57 29	2639	72 35 31	2647	74 13 22	2655	75 51 3	2663
	Aldebaran	W.	37 42 30	2629	39 20 45	2635	40 58 52	2641	42 36 51	2648
	Regulus	E.	42 26 5	2638	40 48 1	2649	39 10 13	2661	37 32 41	2674
	MARS	E.	54 27 0	2597	52 48 1	2609	51 9 18	2621	49 30 52	2634
	Spica	E.	96 6 42	2593	94 27 37	2601	92 48 44	2610	91 10 2	2618
2	<i>α</i> Arietis	W.	83 56 42	2705	85 33 15	2714	87 9 36	2723	88 45 45	2732
	Aldebaran	W.	50 44 23	2686	52 21 22	2693	53 58 11	2702	55 34 48	2710
	MARS	E.	41 23 25	2710	39 46 59	2729	38 10 58	2749	36 35 22	2770
	Spica	E.	82 59 31	2663	81 22 1	2672	79 44 44	2681	78 7 39	2691
3	<i>α</i> Arietis	W.	96 43 21	2782	98 18 13	2792	99 52 52	2801	101 27 18	2812
	Aldebaran	W.	63 35 0	2756	65 10 26	2765	66 45 40	2774	68 20 42	2783
	Pollux	W.	23 23 51	3239	24 49 14	3192	26 15 33	3154	27 42 37	3124
	Spica	E.	70 5 25	2738	68 29 36	2749	66 54 1	2758	65 18 38	2769
	Antares	E.	115 29 31	2761	113 54 12	2771	112 19 6	2780	110 44 12	2789
4	<i>α</i> Arietis	W.	109 16 1	2866	110 49 4	2876	112 21 53	2887	113 54 29	2898
	Aldebaran	W.	76 12 46	2831	77 46 33	2842	79 20 7	2851	80 53 29	2860
	Pollux	W.	35 4 52	3046	36 34 8	3040	38 3 32	3037	39 33 0	3034
	Spica	E.	57 25 1	2818	55 50 56	2827	54 17 3	2837	52 43 23	2847
	Antares	E.	102 52 46	2837	101 19 6	2847	99 45 39	2856	98 12 24	2866
5	Aldebaran	W.	88 37 15	2908	90 9 24	2917	91 41 21	2926	93 13 6	2935
	Pollux	W.	47 0 45	3035	48 30 14	3038	49 59 39	3041	51 29 1	3044
	Spica	E.	44 58 14	2895	43 25 49	2905	41 53 36	2914	40 21 35	2923
	Antares	E.	90 29 14	2914	88 57 13	2923	87 25 23	2932	85 53 45	2941
	JUPITER	E.	115 57 18	2969	114 26 26	2978	112 55 46	2987	111 25 18	2997
	SATURN	E.	124 8 9	2939	122 36 39	2948	121 5 21	2957	119 34 14	2966
6	Aldebaran	W.	100 49 4	2979	102 19 43	2987	103 50 12	2995	105 20 31	3003
	Pollux	W.	58 54 33	3068	60 23 22	3073	61 52 4	3078	63 20 41	3083
	Regulus	W.	21 53 45	3101	23 21 53	3095	24 50 9	3090	26 18 31	3087
	Spica	E.	32 44 18	2966	31 13 23	2975	29 42 39	2983	28 12 4	2991
	Antares	E.	78 18 25	2985	76 47 54	2993	75 17 33	3001	73 47 22	3009
	JUPITER	E.	103 55 45	3040	102 26 22	3048	100 57 9	3056	99 28 5	3065
	SATURN	E.	112 1 24	3009	110 31 22	3016	109 1 29	3024	107 31 46	3031
7	Pollux	W.	70 42 11	3108	72 10 11	3113	73 38 5	3117	75 5 55	3121
	Regulus	W.	33 40 53	3086	35 9 20	3087	36 37 45	3088	38 6 9	3090
	MARS	W.	24 54 39	3228	26 20 15	3203	27 46 21	3180	29 12 54	3161
	Antares	E.	66 18 51	3047	64 49 36	3053	63 20 29	3059	61 51 29	3065
	JUPITER	E.	92 5 1	3098	90 36 49	3104	89 8 44	3110	87 40 46	3115
	SATURN	E.	100 5 27	3065	98 36 35	3071	97 7 50	3077	95 39 12	3082
	<i>α</i> Aquilæ	E.	116 48 12	3557	115 28 51	3551	114 9 23	3545	112 49 49	3539
	SUN	E.	136 2 30	3439	134 40 58	3445	133 19 33	3450	131 58 13	3455
8	Pollux	W.	82 23 49	3139	83 51 11	3142	85 18 30	3144	86 45 46	3146
	Regulus	W.	45 27 32	3100	46 55 42	3101	48 23 50	3101	49 51 58	3103
	MARS	W.	36 30 22	3101	37 58 31	3094	39 26 48	3086	40 55 15	3080
	Antares	E.	54 28 16	3091	52 59 56	3096	51 31 42	3100	50 3 32	3104
	JUPITER	E.	80 22 28	3137	78 55 3	3140	77 27 43	3143	76 0 26	3146

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	<i>α</i> Arietis	W.	77 28 33	2671	79 5 52	2679	80 43 0	2687	82 19 57	2696
	Aldebaran	W.	44 14 41	2655	45 52 21	2662	47 29 52	2669	49 7 13	2678
	Regulus	E.	35 55 26	2687	34 18 29	2702	32 41 52	2717	31 5 34	2732
	MARS	E.	47 52 44	2648	46 14 54	2663	44 37 24	2678	43 0 14	2693
	Spica	E.	89 31 32	2627	87 53 14	2636	86 15 8	2645	84 37 13	2654
2	<i>α</i> Arietis	W.	90 21 42	2742	91 57 26	2752	93 32 57	2762	95 8 15	2771
	Aldebaran	W.	57 11 14	2719	58 47 28	2729	60 23 30	2737	61 59 21	2746
	MARS	E.	35 0 15	2794	33 25 39	2820	31 51 37	2848	30 18 11	2877
	Spica	E.	76 30 47	2700	74 54 7	2710	73 17 41	2719	71 41 27	2729
3	<i>α</i> Arietis	W.	103 1 30	2823	104 35 28	2833	106 9 13	2844	107 42 44	2855
	Aldebaran	W.	69 55 32	2793	71 30 9	2802	73 4 34	2812	74 38 46	2821
	Pollux	W.	29 10 17	3101	30 38 26	3082	32 6 58	3067	33 35 48	3056
	Spica	E.	63 43 29	2779	62 8 33	2788	60 33 50	2798	58 59 19	2808
	Antares	E.	109 9 30	2798	107 35 0	2808	106 0 43	2818	104 26 38	2828
4	<i>α</i> Arietis	W.	115 26 50	2909	116 58 57	2921	118 30 49	2932	120 2 27	2942
	Aldebaran	W.	82 26 39	2870	83 59 36	2880	85 32 21	2889	87 4 54	2898
	Pollux	W.	41 2 31	3031	42 32 5	3030	44 1 41	3031	45 31 15	3033
	Spica	E.	51 9 56	2857	49 36 42	2866	48 3 40	2876	46 30 51	2886
	Antares	E.	96 39 21	2876	95 6 31	2885	93 33 53	2894	92 1 27	2904
5	Aldebaran	W.	94 44 40	2944	96 16 3	2954	97 47 14	2962	99 18 14	2970
	Pollux	W.	52 58 19	3049	54 27 31	3054	55 56 37	3058	57 25 38	3063
	Spica	E.	38 49 45	2932	37 18 7	2941	35 46 40	2950	34 15 24	2958
	Antares	E.	84 22 18	2950	82 51 3	2959	81 20 0	2968	79 49 7	2977
	JUPITER	E.	109 55 2	3006	108 24 57	3014	106 55 2	3023	105 25 18	3032
	SATURN	E.	118 3 19	2974	116 32 34	2983	115 2 0	2992	113 31 37	3000
6	Aldebaran	W.	106 50 40	3010	108 20 40	3018	109 50 30	3025	111 20 12	3032
	Pollux	W.	64 49 11	3088	66 17 35	3093	67 45 53	3098	69 14 5	3103
	Regulus	W.	27 46 56	3085	29 15 24	3083	30 43 54	3083	32 12 24	3084
	Spica	E.	26 41 40	2998	25 11 25	3005	23 41 19	3013	22 11 22	3020
	Antares	E.	72 17 21	3018	70 47 30	3025	69 17 48	3032	67 48 15	3039
	JUPITER	E.	97 59 10	3071	96 30 25	3078	95 1 49	3085	93 33 21	3091
	SATURN	E.	106 2 12	3039	104 32 48	3047	103 3 33	3053	101 34 26	3060
7	Pollux	W.	76 33 39	3125	78 1 18	3129	79 28 52	3132	80 56 22	3135
	Regulus	W.	39 34 31	3093	41 2 49	3095	42 31 5	3096	43 59 19	3097
	MARS	W.	30 39 50	3144	32 7 6	3131	33 34 38	3119	35 2 24	3110
	Antares	E.	60 22 37	3071	58 53 52	3077	57 25 14	3082	55 56 42	3087
	JUPITER	E.	86 12 55	3120	84 45 10	3125	83 17 31	3129	81 49 57	3133
	SATURN	E.	94 10 40	3088	92 42 16	3092	91 13 57	3096	89 45 43	3101
	<i>α</i> Aquilæ	E.	111 30 8	3534	110 10 21	3529	108 50 29	3525	107 30 32	3521
	SUN	E.	130 36 59	3459	129 15 49	3463	127 54 44	3467	126 33 43	3471
8	Pollux	W.	88 13 0	3148	89 40 11	3150	91 7 20	3151	92 34 28	3153
	Regulus	W.	51 20 4	3104	52 48 9	3105	54 16 13	3104	55 44 18	3104
	MARS	W.	42 23 49	3074	43 52 30	3069	45 21 17	3063	46 50 12	3058
	Antares	E.	48 35 27	3108	47 7 27	3111	45 39 31	3114	44 11 39	3117
	JUPITER	E.	74 33 12	3148	73 6 1	3149	71 38 51	3150	70 11 43	3151

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
8	SATURN E.	88 17 34	3104	86 49 29	3108	85 21 29	3110	83 53 32	3112
	α Aquilæ E.	106 10 31	3518	104 50 27	3515	103 30 19	3512	102 10 8	3509
	SUN E.	125 12 46	3474	123 51 52	3477	122 31 2	3479	121 10 14	3481
9	Pollux W.	94 1 34	3153	95 28 40	3153	96 55 45	3153	98 22 51	3153
	Regulus W.	57 12 23	3103	58 40 29	3102	60 8 36	3101	61 36 44	3099
	MARS W.	48 19 13	3054	49 48 19	3049	51 17 31	3044	52 46 49	3039
	Antares E.	42 43 50	3119	41 16 4	3122	39 48 22	3125	38 20 43	3127
	JUPITER E.	68 44 35	3153	67 17 29	3152	65 50 22	3151	64 23 15	3150
	SATURN E.	76 34 21	3119	75 6 35	3119	73 38 48	3118	72 11 0	3117
	α Aquilæ E.	95 28 33	3499	94 8 8	3497	92 47 41	3495	91 27 11	3494
	SUN E.	114 26 42	3485	113 6 1	3485	111 45 20	3483	110 24 37	3481
10	Pollux W.	105 38 35	3145	107 5 50	3142	108 33 8	3139	110 0 30	3136
	Regulus W.	68 58 9	3084	70 26 38	3079	71 55 13	3074	73 23 53	3069
	MARS W.	60 15 0	3011	61 44 59	3005	63 15 5	2998	64 45 20	2991
	Spica W.	14 56 2	3067	16 24 52	3063	17 53 47	3058	19 22 48	3053
	Antares E.	31 3 9	3141	29 35 49	3144	28 8 33	3148	26 41 22	3153
	JUPITER E.	57 7 9	3139	55 39 47	3135	54 12 20	3130	52 44 48	3125
	SATURN E.	64 51 33	3105	63 23 30	3101	61 55 23	3097	60 27 10	3092
	α Aquilæ E.	84 44 18	3486	83 23 38	3485	82 2 58	3483	80 42 15	3482
	SUN E.	103 40 28	3467	102 19 27	3463	100 58 22	3458	99 37 11	3452
11	Regulus W.	80 49 1	3037	82 18 28	3030	83 48 4	3021	85 17 51	3012
	MARS W.	72 18 51	2953	73 50 3	2944	75 21 27	2935	76 53 2	2925
	Spica W.	26 49 45	3019	28 19 34	3011	29 49 33	3002	31 19 43	2993
	JUPITER E.	45 25 27	3096	43 57 13	3089	42 28 50	3082	41 0 18	3073
	SATURN E.	53 4 27	3063	51 35 32	3055	50 6 27	3047	48 37 12	3039
	α Aquilæ E.	73 58 25	3479	72 37 37	3478	71 16 48	3479	69 56 0	3480
	SUN E.	92 49 31	3417	91 27 34	3410	90 5 29	3400	88 43 13	3390
12	Regulus W.	92 49 40	2962	94 20 41	2950	95 51 56	2939	97 23 26	2927
	MARS W.	84 34 6	2873	86 7 0	2861	87 40 9	2849	89 13 33	2837
	Spica W.	38 53 29	2942	40 24 54	2931	41 56 33	2919	43 28 27	2907
	JUPITER E.	33 34 54	3027	32 5 15	3017	30 35 23	3006	29 5 18	2997
	SATURN E.	41 8 14	2991	39 37 50	2981	38 7 13	2970	36 36 22	2959
	α Aquilæ E.	63 12 22	3490	61 51 47	3495	60 31 17	3500	59 10 53	3507
	SUN E.	81 48 57	3337	80 25 28	3324	79 1 44	3311	77 37 45	3298
13	Regulus W.	105 4 54	2861	106 38 3	2846	108 11 31	2832	109 45 17	2818
	MARS W.	97 4 40	2772	98 39 45	2758	100 15 8	2744	101 50 50	2729
	Spica W.	51 12 3	2840	52 45 39	2825	54 19 34	2810	55 53 48	2795
	SATURN E.	28 58 33	2900	27 26 14	2888	25 53 40	2877	24 20 51	2867
	α Aquilæ E.	52 31 21	3563	51 12 9	3585	49 53 18	3606	48 34 50	3629
	SUN E.	70 33 52	3226	69 8 14	3211	67 42 18	3195	66 16 3	3179
14	MARS W.	109 54 7	2656	111 31 46	2642	113 9 44	2627	114 48 2	2612
	Spica W.	63 50 4	2716	65 26 23	2699	67 3 4	2682	68 40 8	2665
	SUN E.	58 59 54	3096	57 31 39	3078	56 3 3	3060	54 34 5	3043
15	Spica W.	76 51 16	2578	78 30 41	2561	80 10 30	2543	81 50 43	2526
	Antares W.	31 45 24	2647	33 23 15	2624	35 1 37	2602	36 40 29	2580

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
8	SATURN	E.	82 25 37	3115	80 57 46	3116	79 29 56	3118	78 2 8	3119
	α Aquilæ	E.	100 49 54	3507	99 29 38	3505	98 9 19	3502	96 48 57	3500
	SUN	E.	119 49 29	3483	118 28 46	3484	117 8 4	3485	115 47 23	3485
9	Pollux	W.	99 49 57	3152	101 17 4	3151	102 44 11	3149	104 11 21	3146
	Regulus	W.	63 4 55	3097	64 33 8	3095	66 1 24	3091	67 29 44	3087
	MARS	W.	54 16 15	3034	55 45 46	3029	57 15 23	3023	58 45 8	3017
	Antares	E.	36 53 6	3129	35 25 32	3132	33 58 1	3135	32 30 33	3138
	JUPITER	E.	62 46 6	3149	61 28 56	3147	60 1 43	3145	58 34 28	3142
	SATURN	E.	70 43 11	3116	69 15 21	3114	67 47 28	3111	66 19 32	3109
	α Aquilæ	E.	90 6 40	3492	88 46 7	3491	87 25 33	3489	86 4 56	3488
	SUN	E.	109 3 52	3480	107 43 6	3478	106 22 17	3475	105 1 24	3471
10	Pollux	W.	111 27 56	3133	112 55 25	3129	114 22 59	3125	115 50 38	3120
	Regulus	W.	74 52 40	3064	76 21 34	3059	77 50 34	3052	79 19 43	3044
	MARS	W.	66 15 44	2985	67 46 16	2977	69 16 58	2969	70 47 49	2961
	Spica	W.	20 51 55	3047	22 21 10	3040	23 50 33	3033	25 20 5	3026
	Antares	E.	25 14 17	3162	23 47 22	3172	22 20 39	3183	20 54 8	3194
	JUPITER	E.	51 17 9	3120	49 49 24	3114	48 21 32	3109	46 53 33	3103
	SATURN	E.	58 58 51	3087	57 30 26	3082	56 1 54	3075	54 33 14	3069
	α Aquilæ	E.	79 21 31	3481	78 0 46	3480	76 40 0	3480	75 19 13	3479
	SUN	E.	98 15 53	3446	96 54 29	3440	95 32 58	3433	94 11 19	3425
11	Regulus	W.	86 47 49	3003	88 17 58	2993	89 48 19	2983	91 18 53	2973
	MARS	W.	78 24 49	2916	79 56 48	2905	81 29 0	2894	83 1 26	2883
	Spica	W.	32 50 4	2981	34 20 37	2975	35 51 21	2965	37 22 18	2954
	JUPITER	E.	39 31 35	3064	38 2 41	3055	36 33 37	3046	35 4 21	3036
	SATURN	E.	47 7 47	3030	45 38 11	3021	44 8 24	3011	42 38 25	3001
	α Aquilæ	E.	68 35 13	3480	67 14 27	3482	65 53 43	3484	64 33 1	3487
	SUN	E.	87 20 45	3380	85 58 6	3370	84 35 16	3359	83 12 13	3348
12	Regulus	W.	98 55 11	2914	100 27 12	2901	101 59 29	2888	103 32 3	2875
	MARS	W.	90 47 14	2825	92 21 10	2811	93 55 23	2798	95 29 53	2785
	Spica	W.	45 0 37	2894	46 33 3	2882	48 5 45	2868	49 38 45	2854
	JUPITER	E.	27 35 1	2986	26 4 31	2975	24 33 47	2965	23 2 51	2955
	SATURN	E.	35 5 18	2947	33 33 59	2935	32 2 25	2924	30 30 36	2912
	α Aquilæ	E.	57 50 37	3515	56 30 30	3525	55 10 34	3537	53 50 50	3550
	SUN	E.	76 13 31	3284	74 49 1	3270	73 24 15	3256	71 59 12	3241
13	Regulus	W.	111 19 22	2803	112 53 46	2788	114 28 30	2772	116 3 34	2756
	MARS	W.	103 26 51	2715	105 3 11	2701	106 39 49	2686	108 16 47	2670
	Spica	W.	57 28 22	2780	59 3 16	2764	60 38 31	2748	62 14 7	2732
	SATURN	E.	22 47 50	2858	21 14 37	2848	19 41 12	2838	18 7 35	2827
	α Aquilæ	E.	47 16 47	3658	45 59 15	3692	44 42 20	3730	43 26 5	3773
	SUN	E.	64 49 29	3163	63 22 35	3146	61 55 22	3129	60 27 48	3113
14	MARS	W.	116 26 41	2598	118 5 39	2583	119 44 58	2568	121 24 37	2553
	Spica	W.	70 17 35	2648	71 55 25	2631	73 33 38	2613	75 12 15	2596
	SUN	E.	53 4 46	3026	51 35 5	3008	50 5 2	2990	48 34 37	2973
15	Spica	W.	83 31 20	2508	85 12 22	2491	86 53 48	2474	88 35 38	2456
	Antares	W.	38 19 52	2559	39 59 44	2537	41 40 6	2517	43 20 56	2497

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
15	SUN E.	47 3 51	2955	45 32 42	2939	44 1 12	2921	42 29 20	2905
16	Spica W.	90 17 53	2440	92 0 31	2422	93 43 34	2405	95 27 1	2389
	Antares W.	45 2 13	2477	46 43 58	2459	48 26 9	2440	50 8 47	2422
	SUN E.	34 44 47	2826	33 10 53	2814	31 36 43	2801	30 2 15	2789
20	SUN W.	19 36 1	2540	21 16 19	2521	22 57 3	2504	24 38 11	2490
	Aldebaran E.	78 41 25	2109	76 50 39	2107	74 59 50	2106	73 9 0	2105
	Pollux E.	120 37 32	2197	118 49 0	2193	117 0 22	2189	115 11 37	2186
21	SUN W.	33 7 21	2460	34 49 31	2458	36 31 43	2458	38 13 55	2460
	Aldebaran E.	63 55 5	2115	62 4 28	2119	60 13 58	2123	58 23 34	2128
	Pollux E.	106 7 5	2182	104 18 10	2184	102 29 19	2186	100 40 31	2189
22	SUN W.	46 44 2	2478	48 25 46	2485	50 7 20	2491	51 48 46	2497
	Aldebaran E.	49 13 41	2161	47 24 14	2169	45 35 1	2178	43 46 1	2188
	Pollux E.	91 38 2	2216	89 49 58	2223	88 2 5	2231	86 14 23	2238
23	SUN W.	60 13 15	2541	61 53 31	2551	63 33 34	2561	65 13 24	2571
	Pollux E.	77 19 6	2287	75 32 47	2298	73 46 45	2310	72 1 0	2321
	Regulus E.	114 1 23	2228	112 13 37	2237	110 26 5	2246	108 38 46	2256
24	SUN W.	73 28 48	2627	75 7 6	2638	76 45 9	2650	78 22 56	2663
	Pollux E.	63 16 44	2388	61 32 52	2403	59 49 21	2418	58 6 11	2433
	Regulus E.	99 45 57	2309	98 0 10	2320	96 14 40	2331	94 29 25	2342
	MARS E.	103 16 46	2229	101 29 1	2239	99 41 31	2249	97 54 17	2260
25	SUN W.	86 27 43	2724	88 3 51	2737	89 39 42	2749	91 15 17	2762
	α Arietis W.	28 18 7	2573	29 57 39	2568	31 37 18	2564	33 17 3	2561
	Pollux E.	49 36 10	2520	47 55 24	2540	46 15 6	2560	44 35 16	2581
	Regulus E.	85 47 21	2401	84 3 47	2412	82 20 29	2424	80 37 28	2436
	MARS E.	89 2 6	2315	87 16 29	2328	85 31 10	2339	83 46 7	2350
26	SUN W.	99 9 4	2824	100 43 1	2836	102 16 42	2848	103 50 7	2861
	α Arietis W.	41 35 56	2572	43 15 29	2577	44 54 55	2583	46 34 14	2589
	Regulus E.	72 6 34	2494	70 25 13	2507	68 44 9	2518	67 3 21	2530
	MARS E.	75 5 10	2411	73 21 51	2423	71 38 49	2436	69 56 5	2448
	Spica E.	125 58 6	2473	124 16 15	2485	122 34 40	2496	120 53 20	2507
27	SUN W.	111 33 17	2921	113 5 9	2933	114 36 46	2944	116 8 9	2956
	α Arietis W.	54 48 25	2626	56 26 44	2635	58 4 52	2643	59 42 49	2651
	Aldebaran W.	21 30 28	2619	23 8 17	2650	24 46 4	2652	26 23 48	2655
	Regulus E.	58 43 27	2588	57 4 16	2600	55 25 21	2612	53 46 42	2625
	MARS E.	61 26 47	2511	59 45 49	2525	58 5 10	2538	56 24 49	2551
	Spica E.	112 30 32	2561	110 50 44	2572	109 11 10	2582	107 31 50	2592
28	SUN W.	123 41 25	3012	125 11 23	3024	126 41 6	3036	128 10 34	3047
	α Arietis W.	67 49 44	2693	69 26 33	2702	71 3 10	2710	72 39 36	2719
	Aldebaran W.	34 31 17	2681	36 8 23	2687	37 45 20	2694	39 22 8	2701
	Regulus E.	45 37 24	2682	44 0 20	2695	42 23 33	2707	40 47 2	2719
	MARS E.	48 7 50	2623	46 29 26	2638	44 51 23	2655	43 13 42	2672
	Spica E.	99 18 39	2642	97 40 41	2652	96 2 57	2661	94 25 25	2671

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
15	SUN	E.	40 57 7	2888	39 24 33	2872	37 51 38	2856	36 18 22	2841
16	Spica	W.	97 10 52	2373	98 55 5	2357	100 39 42	2341	102 24 42	2324
	Antares	W.	51 51 50	2404	53 35 19	2387	55 19 12	2369	57 3 31	2353
	SUN	E.	28 27 33	2779	26 52 38	2771	25 17 32	2765	23 42 18	2762
20	SUN	W.	26 19 38	2480	28 1 20	2471	29 43 14	2466	31 25 15	2462
	Aldebaran	E.	71 18 9	2107	69 27 20	2107	67 36 32	2109	65 45 47	2111
	Pollux	E.	113 42 47	2183	111 33 54	2181	109 44 58	2180	107 56 1	2181
21	SUN	W.	39 56 5	2462	41 38 11	2465	43 20 13	2469	45 2 10	2472
	Aldebaran	E.	56 33 16	2134	54 43 8	2139	52 53 9	2146	51 3 20	2153
	Pollux	E.	98 51 47	2193	97 3 9	2198	95 14 39	2203	93 26 16	2209
22	SUN	W.	53 30 3	2506	55 11 8	2514	56 52 2	2522	58 32 45	2531
	Aldebaran	E.	41 57 14	2198	40 8 43	2209	38 20 29	2221	36 32 32	2233
	Pollux	E.	84 26 52	2247	82 39 35	2256	80 52 31	2266	79 5 41	2276
23	SUN	W.	66 52 59	2581	68 32 20	2593	70 11 24	2604	71 50 13	2615
	Pollux	E.	70 15 31	2333	68 30 20	2347	66 45 29	2360	65 0 57	2373
	Regulus	E.	106 51 42	2266	105 4 53	2277	103 18 19	2287	101 32 0	2298
24	SUN	W.	80 0 26	2675	81 37 40	2687	83 14 37	2699	84 51 18	2711
	Pollux	E.	56 23 24	2449	54 40 59	2466	52 58 58	2483	51 17 21	2501
	Regulus	E.	92 44 27	2353	90 59 45	2365	89 15 21	2377	87 31 13	2388
	MARS	E.	96 7 19	2271	94 20 37	2281	92 34 10	2293	90 48 0	2304
25	SUN	W.	92 50 35	2774	94 25 37	2787	96 0 22	2799	97 34 51	2811
	α Arietis	W.	34 56 52	2559	36 36 43	2561	38 16 32	2564	39 56 17	2568
	Pollux	E.	42 55 55	2604	41 17 5	2629	39 38 49	2655	38 1 8	2680
	Regulus	E.	78 54 44	2447	77 12 16	2460	75 30 6	2471	73 48 12	2482
	MARS	E.	82 1 21	2362	80 16 52	2375	78 32 41	2387	76 48 47	2399
26	SUN	W.	105 23 16	2873	106 56 9	2885	108 28 47	2897	110 1 10	2909
	α Arietis	W.	48 13 24	2596	49 52 24	2603	51 31 14	2610	53 9 55	2618
	Regulus	E.	65 22 50	2542	63 42 35	2554	62 2 37	2565	60 22 54	2577
	MARS	E.	68 13 38	2460	66 31 29	2472	64 49 37	2485	63 8 3	2498
	Spica	E.	119 12 16	2517	117 31 27	2529	115 50 54	2540	114 10 36	2550
27	SUN	W.	117 39 17	2968	119 10 10	2979	120 40 49	2990	122 11 13	3001
	α Arietis	W.	61 20 35	2660	62 58 9	2668	64 35 32	2676	66 12 44	2685
	Aldebaran	W.	28 1 29	2657	29 39 6	2661	31 16 38	2667	32 54 2	2674
	Regulus	E.	52 8 18	2635	50 30 11	2646	48 52 19	2658	47 14 44	2670
	MARS	E.	54 44 47	2564	53 5 3	2579	51 25 39	2593	49 46 35	2608
	Spica	E.	105 52 44	2603	104 13 53	2612	102 35 15	2622	100 56 50	2632
28	SUN	W.	129 39 48	3058	131 8 49	3069	132 37 36	3080	134 6 9	3091
	α Arietis	W.	74 15 50	2728	75 51 53	2737	77 27 44	2745	79 3 24	2753
	Aldebaran	W.	40 58 46	2709	42 35 14	2716	44 11 33	2723	45 47 42	2731
	Regulus	E.	39 10 47	2732	37 34 50	2745	35 59 10	2759	34 23 48	2773
	MARS	E.	41 36 24	2689	39 59 30	2709	38 23 2	2729	36 47 1	2750
	Spica	E.	92 48 6	2680	91 10 59	2689	89 34 5	2698	87 57 23	2707

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S					Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.			
		h m s	s	° ' "	"	' "	s	m s	s
Frid.	1	22 47 3.23	9.369	S. 7 43 50.9	+56.86	16 9.32	65.39	12 38.34	0.486
Sat.	2	22 50 47.81	9.347	7 21 3.4	57.11	16 9.08	65.32	12 26.41	0.508
SUN.	3	22 54 31.88	9.327	6 58 9.6	57.34	16 8.83	65.25	12 13.95	0.529
Mon.	4	22 58 15.47	9.307	6 35 9.9	+57.56	16 8.59	65.18	12 1.02	0.549
Tues.	5	23 1 58.59	9.288	6 12 4.7	57.78	16 8.34	65.11	11 47.63	0.568
Wed.	6	23 5 41.27	9.270	5 48 54.5	57.99	16 8.09	65.04	11 33.79	0.585
Thur.	7	23 9 23.52	9.253	5 25 39.5	+58.20	16 7.83	64.98	11 19.53	0.602
Frid.	8	23 13 5.38	9.237	5 2 20.0	58.38	16 7.58	64.92	11 4.88	0.618
Sat.	9	23 16 46.87	9.222	4 38 56.6	58.55	16 7.32	64.86	10 49.86	0.634
SUN.	10	23 20 28.00	9.207	4 15 29.5	+58.69	16 7.06	64.81	10 34.47	0.648
Mon.	11	23 24 8.80	9.194	3 51 59.3	58.82	16 6.80	64.76	10 18.76	0.661
Tues.	12	23 27 49.29	9.182	3 28 26.0	58.94	16 6.54	64.71	10 2.74	0.673
Wed.	13	23 31 29.49	9.170	3 4 50.3	+59.05	16 6.28	64.67	9 46.43	0.685
Thur.	14	23 35 9.42	9.159	2 41 12.4	59.13	16 6.02	64.63	9 29.86	0.696
Frid.	15	23 38 49.11	9.149	2 17 32.7	59.18	16 5.75	64.59	9 13.04	0.706
Sat.	16	23 42 28.56	9.140	1 53 51.6	+59.23	16 5.49	64.56	8 56.00	0.715
SUN.	17	23 46 7.81	9.132	1 30 9.6	59.27	16 5.22	64.53	8 38.75	0.723
Mon.	18	23 49 46.87	9.124	1 6 26.8	59.29	16 4.95	64.50	8 21.31	0.730
Tues.	19	23 53 25.77	9.117	0 42 43.8	+59.29	16 4.68	64.48	8 3.69	0.737
Wed.	20	23 57 4.52	9.111	S. 0 19 1.0	59.27	16 4.41	64.46	7 45.94	0.743
Thur.	21	0 0 43.12	9.106	N. 0 4 41.2	59.24	16 4.14	64.44	7 28.03	0.749
Frid.	22	0 4 21.59	9.101	0 28 22.5	+59.20	16 3.87	64.42	7 9.99	0.754
Sat.	23	0 7 59.95	9.097	0 52 2.5	59.14	16 3.59	64.41	6 51.86	0.758
SUN.	24	0 11 38.22	9.093	1 15 40.9	59.06	16 3.31	64.40	6 33.63	0.761
Mon.	25	0 15 16.41	9.090	1 39 17.1	+58.96	16 3.03	64.39	6 15.32	0.764
Tues.	26	0 18 54.54	9.088	2 2 50.8	58.85	16 2.76	64.38	5 56.96	0.766
Wed.	27	0 22 32.65	9.087	2 26 21.9	58.73	16 2.48	64.38	5 38.56	0.767
Thur.	28	0 26 10.73	9.087	2 49 49.9	+58.59	16 2.21	64.38	5 20.14	0.767
Frid.	29	0 29 48.83	9.088	3 13 14.4	58.44	16 1.93	64.39	5 1.73	0.767
Sat.	30	0 33 26.95	9.089	3 36 35.1	58.28	16 1.65	64.40	4 43.33	0.765
SUN.	31	0 37 5.10	9.092	3 59 51.7	58.10	16 1.37	64.41	4 24.99	0.763
Mon.	32	0 40 43.32	9.095	N. 4 23 3.8	+57.90	16 1.09	64.42	4 6.72	0.759

NOTE.—The mean time of semidiameter passing may be found by subtracting 0.18 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing; north declinations increasing.

AT GREENWICH MEAN NOON.

		THE SUN'S													
Day of the Week.	Day of the Month.	Apparent Right Ascension.			Diff. for 1 Hour.	Apparent Declination			Diff. for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.		Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.		
		h	m	s		°	'	"		m	s		h	m	s
Frid.	1	22	47	1.26	+ 9.370	S. 7	44	2.9	+ 56.86	12	38.44	+ 0.486	22	34	22.82
Sat.	2	22	50	45.87	9.348	7	21	15.2	57.12	12	26.51	0.508	22	38	19.37
SUN.	3	22	54	29.98	9.328	6	58	21.3	57.35	12	14.06	0.529	22	42	15.92
Mon.	4	22	58	13.60	+ 9.308	6	35	21.5	+ 57.57	12	1.13	+ 0.549	22	46	12.47
Tues.	5	23	1	56.76	9.289	6	12	16.1	57.79	11	47.74	0.568	22	50	9.02
Wed.	6	23	5	39.48	9.271	5	49	5.7	58.00	11	33.90	0.585	22	54	5.58
Thur.	7	23	9	21.77	+ 9.254	5	25	50.5	+ 58.20	11	19.64	+ 0.602	22	58	2.13
Frid.	8	23	13	3.67	9.238	5	2	30.8	58.38	11	4.99	0.618	23	1	58.68
Sat.	9	23	16	45.20	9.223	4	39	7.2	58.55	10	49.97	0.634	23	5	55.23
SUN.	10	23	20	26.37	+ 9.209	4	15	39.9	+ 58.70	10	34.58	+ 0.648	23	9	51.79
Mon.	11	23	24	7.21	9.196	3	52	9.4	58.83	10	18.87	0.661	23	13	48.34
Tues.	12	23	27	47.74	9.183	3	28	35.9	58.95	10	2.85	0.673	23	17	44.89
Wed.	13	23	31	27.99	+ 9.172	3	4	59.9	+ 59.05	9	46.54	+ 0.685	23	21	41.44
Thur.	14	23	35	7.96	9.161	2	41	21.8	59.13	9	29.97	0.696	23	25	38.00
Frid.	15	23	38	47.70	9.151	2	17	41.8	59.19	9	13.15	0.706	23	29	34.55
Sat.	16	23	42	27.20	+ 9.142	1	54	0.4	+ 59.24	8	56.10	+ 0.715	23	33	31.10
SUN.	17	23	46	6.50	9.134	1	30	18.1	59.28	8	38.85	0.723	23	37	27.65
Mon.	18	23	49	45.61	9.126	1	6	35.1	59.30	8	21.41	0.730	23	41	24.21
Tues.	19	23	53	24.55	+ 9.119	0	42	51.8	+ 59.30	8	3.79	+ 0.737	23	45	20.76
Wed.	20	23	57	3.34	9.113	S. 0	19	8.7	59.28	7	46.03	0.743	23	49	17.31
Thur.	21	0	0	41.98	9.108	N. 0	4	33.8	59.25	7	28.12	0.749	23	53	13.86
Frid.	22	0	4	20.50	+ 9.103	0	28	15.4	+ 59.21	7	10.08	+ 0.754	23	57	10.42
Sat.	23	0	7	58.91	9.099	0	51	55.7	59.15	6	51.94	0.758	0	1	6.97
SUN.	24	0	11	37.23	9.095	1	15	34.4	59.07	6	33.71	0.761	0	5	3.52
Mon.	25	0	15	15.47	+ 9.092	1	39	10.9	+ 58.97	6	15.40	+ 0.764	0	9	0.07
Tues.	26	0	18	53.65	9.090	2	2	45.0	58.86	5	57.03	0.766	0	12	56.62
Wed.	27	0	22	31.80	9.089	2	26	16.4	58.74	5	38.63	0.767	0	16	53.18
Thur.	28	0	26	9.93	+ 9.089	2	49	44.7	+ 58.60	5	20.20	+ 0.767	0	20	49.73
Frid.	29	0	29	48.07	9.090	3	13	9.5	58.45	5	1.79	0.767	0	24	46.28
Sat.	30	0	33	26.22	9.091	3	36	30.5	58.29	4	43.39	0.765	0	28	42.83
SUN.	31	0	37	4.43	9.094	3	59	47.4	58.12	4	25.05	0.763	0	32	39.38
Mon.	32	0	40	42.70	+ 9.097	N. 4	22	59.8	+ 57.96	4	6.77	+ 0.759	0	36	35.94

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing; north declinations, increasing.

Diff. for 1 Hour,
+ 9^s.8565.
(Table III.)

AT GREENWICH MEAN NOON.

THE SUN'S											
Day of the Month.	Day of the Year.	TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.			
		λ	λ'								
		$^{\circ}$	$'$	$''$	$'$	$''$		$^{\text{h}}$	$^{\text{m}}$	$^{\text{s}}$	
1	60	340	14	27.0	14	3.3	150.43	— 0.35	9.9961422	+44.4	I 25 23.16
2	61	341	14	36.3	14	12.5	150.34	0.39	9.9962494	45.0	I 21 27.25
3	62	342	14	43.6	14	19.7	150.26	0.40	9.9963582	45.7	I 17 31.34
4	63	343	14	49.0	14	25.0	150.18	— 0.41	9.9964686	+46.4	I 13 35.44
5	64	344	14	52.4	14	28.3	150.11	0.37	9.9965806	47.0	I 9 39.53
6	65	345	14	54.0	14	29.8	150.03	0.32	9.9966941	47.6	I 5 43.63
7	66	346	14	53.8	14	29.5	149.95	— 0.25	9.9968090	+48.2	I 1 47.72
8	67	347	14	51.7	14	27.4	149.88	0.14	9.9969254	48.8	O 57 51.81
9	68	348	14	48.0	14	23.5	149.81	— 0.03	9.9970430	49.3	O 53 55.91
10	69	349	14	42.4	14	17.9	149.73	+ 0.11	9.9971618	+49.8	O 50 0.00
11	70	350	14	35.2	14	10.6	149.66	0.23	9.9972817	50.2	O 46 4.09
12	71	351	14	26.2	14	1.5	149.59	0.36	9.9974026	50.6	O 42 8.19
13	72	352	14	15.5	13	50.7	149.52	+ 0.48	9.9975243	+50.9	O 38 12.28
14	73	353	14	3.2	13	38.3	149.45	0.58	9.9976467	51.1	O 34 16.37
15	74	354	13	49.2	13	24.2	149.38	0.67	9.9977696	51.3	O 30 20.47
16	75	355	13	33.4	13	8.3	149.31	+ 0.73	9.9978930	+51.4	O 26 24.56
17	76	356	13	15.9	12	50.7	149.23	0.76	9.9980165	51.5	O 22 28.66
18	77	357	12	56.6	12	31.4	149.16	0.77	9.9981400	51.5	O 18 32.75
19	78	358	12	35.4	12	10.1	149.08	+ 0.74	9.9982634	+51.4	O 14 36.84
20	79	359	12	12.3	11	46.9	149.00	0.68	9.9983866	51.3	O 10 40.94
21	80	0	11	47.2	11	21.7	148.91	0.59	9.9985095	51.2	O 6 45.03
22	81	1	11	19.9	10	54.4	148.82	+ 0.49	9.9986321	+51.1	{ O 2 49.12 }
23	82	2	10	50.5	10	24.8	148.73	0.36	9.9987545	50.9	{ 23 58 53.21 }
24	83	3	10	18.8	9	53.1	148.63	0.24	9.9988766	50.8	23 54 57.30
25	84	4	9	44.8	9	19.0	148.53	+ 0.10	9.9989987	+50.8	23 51 1.40
26	85	5	9	8.4	8	42.5	148.44	— 0.02	9.9991207	50.8	23 47 5.49
27	86	6	8	29.8	8	3.8	148.34	0.12	9.9992428	50.9	23 43 9.59
28	87	7	7	48.7	7	22.6	148.25	— 0.21	9.9993651	+51.0	23 39 13.68
29	88	8	7	5.3	6	39.2	148.15	0.26	9.9994877	51.1	23 35 17.78
30	89	9	6	19.7	5	53.4	148.05	0.29	9.9996106	51.3	23 31 21.87
31	90	10	5	31.7	5	5.4	147.96	0.30	9.9997340	51.5	23 27 25.96
32	91	11	4	41.6	4	15.1	147.86	— 0.27	9.9998577	+51.7	23 23 30.06

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0^h.0 of the Besselian fictitious year.

Diff. for 1 Hour,
—9^s.8296.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	"	"	"	"	"	"	h m	m	d
1	15 23.1	15 19.0	56 21.2	- 1.30	56 6.0	- 1.24	9 33.2	+ 2.04	10.4
2	15 15.0	15 11.3	55 51.5	1.18	55 37.7	1.12	10 20.9	1.94	11.4
3	15 7.7	15 4.3	55 24.6	1.06	55 12.2	1.00	11 6.4	1.86	12.4
4	15 1.2	14 58.2	55 0.6	- 0.93	54 49.7	- 0.86	11 50.2	+ 1.80	13.4
5	14 55.5	14 53.0	54 39.8	0.79	54 30.7	0.71	12 32.9	1.77	14.4
6	14 50.9	14 49.0	54 22.8	0.62	54 15.9	0.51	13 15.2	1.77	15.4
7	14 47.5	14 46.4	54 10.4	- 0.40	54 6.3	- 0.28	13 57.8	+ 1.79	16.4
8	14 45.7	14 45.5	54 3.8	- 0.14	54 2.9	+ 0.01	14 41.2	1.84	17.4
9	14 45.7	14 46.6	54 3.9	+ 0.17	54 6.9	0.34	15 26.0	1.90	18.4
10	14 48.0	14 50.0	54 12.1	+ 0.52	54 19.4	+ 0.71	16 12.3	+ 1.97	19.4
11	14 52.6	14 55.9	54 29.1	0.90	54 41.1	1.10	17 0.4	2.04	20.4
12	14 59.8	15 4.4	54 55.6	1.30	55 12.5	1.50	17 50.2	2.11	21.4
13	15 9.6	15 15.5	55 31.7	+ 1.69	55 53.1	+ 1.87	18 41.4	+ 2.14	22.4
14	15 21.9	15 28.8	56 16.6	2.03	56 41.9	2.17	19 33.5	2.18	23.4
15	15 36.1	15 43.7	57 8.7	2.28	57 36.7	2.35	20 26.0	2.19	24.4
16	15 51.5	15 59.3	58 5.3	+ 2.39	58 34.0	+ 2.37	21 18.8	+ 2.20	25.4
17	16 7.0	16 14.3	59 2.2	2.30	59 29.2	2.17	22 11.7	2.21	26.4
18	16 21.1	16 27.3	59 54.3	1.98	60 16.8	1.74	23 5.0	2.24	27.4
19	16 32.5	16 36.7	60 36.1	+ 1.44	60 51.4	+ 1.10	23 59.1	+ 2.28	28.4
20	16 39.7	16 41.4	61 2.5	+ 0.73	61 8.9	+ 0.33	0		0.0
21	16 41.9	16 41.0	61 10.6	- 0.06	61 7.4	- 0.45	0 54.6	2.34	1.0
22	16 38.9	16 35.7	60 59.7	- 0.82	60 47.8	- 1.15	1 51.6	+ 2.41	2.0
23	16 31.5	16 26.3	60 32.2	1.43	60 13.4	1.67	2 50.0	2.45	3.0
24	16 20.5	16 14.2	59 52.0	1.85	59 28.9	1.98	3 49.1	2.46	4.0
25	16 7.6	16 0.7	59 4.4	- 2.06	58 39.3	- 2.10	4 47.9	+ 2.42	5.0
26	15 53.8	15 47.0	58 14.0	2.09	57 49.0	2.05	5 44.9	2.33	6.0
27	15 40.4	15 34.1	57 24.7	1.98	57 1.4	1.89	6 39.3	2.20	7.0
28	15 28.0	15 22.4	56 39.3	- 1.79	56 18.5	- 1.67	7 30.7	+ 2.07	8.0
29	15 17.1	15 12.3	55 59.2	1.55	55 41.4	1.42	8 19.0	1.96	9.0
30	15 7.8	15 3.8	55 25.1	1.29	55 10.4	1.17	9 4.8	1.87	10.0
31	15 0.2	14 57.0	54 57.1	1.04	54 45.3	0.93	9 48.6	1.80	11.0
32	14 54.2	14 51.7	54 34.9	- 0.81	54 25.9	- 0.70	10 31.2	+ 1.76	12.0

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 1.					SUNDAY 3.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	7 48 30.66	2.1793	N. 16 40 57.0	7.231	0	9 28 30.64	1.9964	N. 9 38 22.9	10.027
1	7 50 41.29	2.1750	16 33 40.7	7.311	1	9 30 30.33	1.9933	9 28 20.1	10.064
2	7 52 51.66	2.1708	16 26 19.7	7.389	2	9 32 29.84	1.9903	9 18 15.2	10.099
3	7 55 1.78	2.1665	16 18 54.0	7.467	3	9 34 29.17	1.9873	9 8 8.2	10.134
4	7 57 11.64	2.1623	16 11 23.6	7.545	4	9 36 28.31	1.9842	8 57 59.1	10.168
5	7 59 21.26	2.1582	16 3 48.6	7.621	5	9 38 27.27	1.9813	8 47 48.0	10.201
6	8 1 30.62	2.1539	15 56 9.1	7.696	6	9 40 26.06	1.9783	8 37 35.0	10.233
7	8 3 39.73	2.1498	15 48 25.1	7.770	7	9 42 24.67	1.9754	8 27 20.0	10.265
8	8 5 48.59	2.1456	15 40 36.7	7.843	8	9 44 23.11	1.9726	8 17 3.2	10.295
9	8 7 57.20	2.1414	15 32 44.0	7.915	9	9 46 21.38	1.9698	8 6 44.6	10.325
10	8 10 5.56	2.1373	15 24 46.9	7.987	10	9 48 19.49	1.9671	7 56 24.2	10.354
11	8 12 13.67	2.1332	15 16 45.5	8.058	11	9 50 17.43	1.9643	7 46 2.1	10.382
12	8 14 21.54	2.1291	15 8 40.0	8.127	12	9 52 15.20	1.9615	7 35 38.4	10.408
13	8 16 29.16	2.1249	15 0 30.3	8.196	13	9 54 12.81	1.9589	7 25 13.1	10.435
14	8 18 36.53	2.1208	14 52 16.5	8.263	14	9 56 10.27	1.9563	7 14 46.2	10.461
15	8 20 43.66	2.1168	14 43 58.7	8.330	15	9 58 7.57	1.9538	7 4 17.8	10.485
16	8 22 50.55	2.1128	14 35 36.9	8.397	16	10 0 4.72	1.9513	6 53 48.0	10.509
17	8 24 57.19	2.1087	14 27 11.1	8.462	17	10 2 1.72	1.9488	6 43 16.7	10.532
18	8 27 3.59	2.1047	14 18 41.5	8.526	18	10 3 58.57	1.9463	6 32 44.1	10.554
19	8 29 9.75	2.1007	14 10 8.0	8.589	19	10 5 55.27	1.9438	6 22 10.2	10.576
20	8 31 15.67	2.0968	14 1 30.8	8.651	20	10 7 51.83	1.9414	6 11 35.0	10.597
21	8 33 21.36	2.0928	13 52 49.9	8.712	21	10 9 48.24	1.9391	6 0 58.6	10.617
22	8 35 26.81	2.0888	13 44 5.4	8.772	22	10 11 44.52	1.9369	5 50 21.0	10.636
23	8 37 32.02	2.0849	N. 13 35 17.3	8.832	23	10 13 40.67	1.9347	N. 5 39 42.3	10.653
SATURDAY 2.					MONDAY 4.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	8 39 37.00	2.0811	N. 13 26 25.6	8.891	0	10 15 36.68	1.9324	N. 5 29 2.6	10.671
1	8 41 41.75	2.0772	13 17 30.4	8.948	1	10 17 32.51	1.9303	5 18 21.8	10.688
2	8 43 46.26	2.0733	13 8 31.8	9.005	2	10 19 28.36	1.9281	5 7 40.1	10.703
3	8 45 50.54	2.0695	12 59 29.8	9.061	3	10 21 23.93	1.9260	4 56 57.4	10.719
4	8 47 54.60	2.0658	12 50 24.5	9.115	4	10 23 19.43	1.9240	4 46 13.8	10.733
5	8 49 58.43	2.0620	12 41 16.0	9.169	5	10 25 14.81	1.9220	4 35 29.4	10.747
6	8 52 2.04	2.0583	12 32 4.2	9.223	6	10 27 10.07	1.9201	4 24 44.2	10.759
7	8 54 5.43	2.0546	12 22 49.2	9.276	7	10 29 5.22	1.9182	4 13 58.3	10.771
8	8 56 8.59	2.0508	12 13 31.1	9.327	8	10 31 0.25	1.9163	4 3 11.7	10.782
9	8 58 11.53	2.0472	12 4 10.0	9.377	9	10 32 55.18	1.9145	3 52 24.4	10.793
10	9 0 14.26	2.0437	11 54 45.9	9.427	10	10 34 49.99	1.9127	3 41 36.5	10.803
11	9 2 16.77	2.0401	11 45 18.8	9.476	11	10 36 44.70	1.9109	3 30 48.0	10.812
12	9 4 19.07	2.0365	11 35 48.8	9.523	12	10 38 39.30	1.9092	3 19 59.0	10.820
13	9 6 21.15	2.0330	11 26 16.0	9.570	13	10 40 33.80	1.9076	3 9 9.6	10.828
14	9 8 23.03	2.0295	11 16 40.4	9.616	14	10 42 28.21	1.9060	2 58 19.7	10.835
15	9 10 24.69	2.0260	11 7 2.1	9.661	15	10 44 22.52	1.9044	2 47 29.4	10.841
16	9 12 26.15	2.0227	10 57 21.1	9.705	16	10 46 16.74	1.9029	2 36 38.8	10.846
17	9 14 27.41	2.0193	10 47 37.5	9.748	17	10 48 10.87	1.9014	2 25 47.9	10.850
18	9 16 28.46	2.0158	10 37 51.3	9.792	18	10 50 4.91	1.9000	2 14 56.8	10.853
19	9 18 29.31	2.0126	10 28 2.5	9.833	19	10 51 58.87	1.8986	2 4 5.5	10.857
20	9 20 29.97	2.0093	10 18 11.3	9.873	20	10 53 52.74	1.8972	1 53 14.0	10.860
21	9 22 30.43	2.0060	10 8 17.7	9.913	21	10 55 46.53	1.8959	1 42 22.3	10.862
22	9 24 30.69	2.0028	9 58 21.7	9.952	22	10 57 40.25	1.8948	1 31 30.6	10.862
23	9 26 30.76	1.9996	9 48 23.4	9.990	23	10 59 33.90	1.8935	1 20 38.9	10.862
24	9 28 30.64	1.9964	N. 9 38 22.9	10.027	24	11 1 27.47	1.8923	N. 1 9 47.2	10.861

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 5.					THURSDAY 7.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	11 1 27.47	1.8923	N. 1 9 47.2	10.861	0	12 31 44.26	1.8853	S. 7 17 44.7	10.032
1	11 3 20.97	1.8911	0 58 55.6	10.860	1	12 33 37.40	1.8862	7 27 45.6	9.998
2	11 5 14.40	1.8900	0 48 4.0	10.858	2	12 35 30.60	1.8871	7 37 44.5	9.964
3	11 7 7.77	1.8890	0 37 12.6	10.855	3	12 37 23.85	1.8880	7 47 41.3	9.930
4	11 9 1.08	1.8880	0 26 21.4	10.852	4	12 39 17.16	1.8889	7 57 36.1	9.895
5	11 10 54.33	1.8870	0 15 30.4	10.848	5	12 41 10.52	1.8899	8 7 28.7	9.859
6	11 12 47.52	1.8861	N. 0 4 39.7	10.843	6	12 43 3.95	1.8910	8 17 19.2	9.823
7	11 14 40.66	1.8853	S. 0 6 10.7	10.838	7	12 44 57.44	1.8920	8 27 7.5	9.786
8	11 16 33.75	1.8844	0 17 0.8	10.831	8	12 46 50.99	1.8931	8 36 53.5	9.748
9	11 18 26.79	1.8836	0 27 50.4	10.823	9	12 48 44.61	1.8943	8 46 37.3	9.711
10	11 20 19.78	1.8828	0 38 39.6	10.816	10	12 50 38.30	1.8955	8 56 18.8	9.672
11	11 22 12.73	1.8822	0 49 28.3	10.808	11	12 52 32.07	1.8967	9 5 57.9	9.633
12	11 24 5.64	1.8815	1 0 16.6	10.800	12	12 54 25.90	1.8978	9 15 34.7	9.593
13	11 25 58.51	1.8808	1 11 4.3	10.789	13	12 56 19.81	1.8992	9 25 9.1	9.553
14	11 27 51.34	1.8803	1 21 51.3	10.778	14	12 58 13.80	1.9005	9 34 41.0	9.511
15	11 29 44.14	1.8798	1 32 37.7	10.767	15	13 0 7.87	1.9018	9 44 10.4	9.469
16	11 31 36.91	1.8793	1 43 23.4	10.756	16	13 2 2.02	1.9032	9 53 37.3	9.427
17	11 33 29.65	1.8788	1 54 8.4	10.743	17	13 3 56.25	1.9046	10 3 1.6	9.384
18	11 35 22.37	1.8784	2 4 52.6	10.730	18	13 5 50.57	1.9061	10 12 23.4	9.341
19	11 37 15.06	1.8781	2 15 36.0	10.716	19	13 7 44.98	1.9076	10 21 42.5	9.297
20	11 39 7.74	1.8778	2 26 18.5	10.702	20	13 9 39.48	1.9091	10 30 59.0	9.253
21	11 41 0.39	1.8774	2 37 0.2	10.687	21	13 11 34.07	1.9106	10 40 12.8	9.207
22	11 42 53.03	1.8772	2 47 40.9	10.671	22	13 13 28.75	1.9122	10 49 23.8	9.161
23	11 44 45.66	1.8770	S. 2 58 20.7	10.654	23	13 15 23.53	1.9138	S. 10 58 32.1	9.114
WEDNESDAY 6.					FRIDAY 8.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	11 46 38.27	1.8768	S. 3 8 59.4	10.637	0	13 17 18.41	1.9155	S. 11 7 37.5	9.067
1	11 48 30.88	1.8768	3 19 37.1	10.619	1	13 19 13.39	1.9172	11 16 40.1	9.019
2	11 50 23.48	1.8767	3 30 13.7	10.601	2	13 21 8.47	1.9188	11 25 39.8	8.971
3	11 52 16.08	1.8767	3 40 49.2	10.582	3	13 23 3.65	1.9206	11 34 36.6	8.922
4	11 54 8.68	1.8767	3 51 23.5	10.562	4	13 24 58.94	1.9224	11 43 30.5	8.873
5	11 56 1.28	1.8767	4 1 56.6	10.541	5	13 26 54.34	1.9241	11 52 21.4	8.823
6	11 57 53.88	1.8768	4 12 28.4	10.520	6	13 28 49.84	1.9260	12 1 9.2	8.772
7	11 59 46.49	1.8769	4 22 59.0	10.498	7	13 30 45.46	1.9279	12 9 54.0	8.721
8	12 1 39.11	1.8771	4 33 28.2	10.476	8	13 32 41.19	1.9298	12 18 35.7	8.669
9	12 3 31.74	1.8773	4 43 56.1	10.453	9	13 34 37.04	1.9318	12 27 14.3	8.617
10	12 5 24.39	1.8776	4 54 22.6	10.430	10	13 36 33.00	1.9336	12 35 49.8	8.564
11	12 7 17.05	1.8778	5 4 47.7	10.405	11	13 38 29.07	1.9356	12 44 22.0	8.510
12	12 9 9.73	1.8782	5 15 11.2	10.379	12	13 40 25.27	1.9377	12 52 51.0	8.456
13	12 11 2.43	1.8786	5 25 33.2	10.354	13	13 42 21.59	1.9397	13 1 16.7	8.402
14	12 12 55.16	1.8791	5 35 53.7	10.328	14	13 44 18.03	1.9418	13 9 39.2	8.347
15	12 14 47.92	1.8795	5 46 12.6	10.301	15	13 46 14.60	1.9438	13 17 58.3	8.290
16	12 16 40.70	1.8799	5 56 29.8	10.273	16	13 48 11.29	1.9459	13 26 14.0	8.233
17	12 18 33.51	1.8805	6 6 45.4	10.246	17	13 50 8.11	1.9480	13 34 26.3	8.177
18	12 20 26.36	1.8811	6 16 59.3	10.217	18	13 52 5.05	1.9502	13 42 35.2	8.119
19	12 22 19.24	1.8817	6 27 11.4	10.187	19	13 54 2.13	1.9524	13 50 40.6	8.061
20	12 24 12.16	1.8823	6 37 21.8	10.157	20	13 55 59.34	1.9546	13 58 42.5	8.002
21	12 26 5.12	1.8830	6 47 30.3	10.127	21	13 57 56.68	1.9568	14 6 40.9	7.943
22	12 27 58.12	1.8838	6 57 37.0	10.096	22	13 59 54.16	1.9592	14 14 35.7	7.883
23	12 29 51.17	1.8845	7 7 41.8	10.064	23	14 1 51.78	1.9614	14 22 26.9	7.822
24	12 31 44.26	1.8853	S. 7 17 44.7	10.032	24	14 3 49.53	1.9638	S. 14 30 14.3	7.760

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 9.					MONDAY 11.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	14 3 49.53	1.9638	S. 14 30 14.3	7.760	0	15 41 4.10	2.0919	S. 19 21 38.4	4.169
1	14 5 47.43	1.9661	14 37 58.1	7.698	1	15 43 9.70	2.0948	19 25 45.9	4.082
2	14 7 45.46	1.9684	14 45 38.2	7.637	2	15 45 15.48	2.0977	19 29 48.2	3.993
3	14 9 43.64	1.9708	14 53 14.6	7.574	3	15 47 21.42	2.1004	19 33 45.1	3.903
4	14 11 41.96	1.9733	15 0 47.1	7.510	4	15 49 27.53	2.1032	19 37 36.6	3.814
5	14 13 40.43	1.9757	15 8 15.8	7.447	5	15 51 33.80	2.1059	19 41 22.8	3.725
6	14 15 39.04	1.9781	15 15 40.7	7.383	6	15 53 40.24	2.1088	19 45 3.6	3.634
7	14 17 37.80	1.9806	15 23 1.7	7.318	7	15 55 46.85	2.1116	19 48 38.9	3.543
8	14 19 36.71	1.9830	15 30 18.8	7.252	8	15 57 53.63	2.1143	19 52 8.8	3.452
9	14 21 35.76	1.9855	15 37 31.9	7.186	9	16 0 0.57	2.1170	19 55 33.2	3.360
10	14 23 34.97	1.9880	15 44 41.1	7.119	10	16 2 7.67	2.1198	19 58 52.0	3.267
11	14 25 34.32	1.9905	15 51 46.2	7.051	11	16 4 14.94	2.1225	20 2 5.2	3.174
12	14 27 33.83	1.9932	15 58 47.2	6.983	12	16 6 22.37	2.1253	20 5 12.9	3.082
13	14 29 33.50	1.9958	16 5 44.2	6.915	13	16 8 29.97	2.1279	20 8 15.0	2.988
14	14 31 33.32	1.9983	16 12 37.0	6.845	14	16 10 37.72	2.1306	20 11 11.4	2.893
15	14 33 33.29	2.0008	16 19 25.6	6.776	15	16 12 45.64	2.1333	20 14 2.1	2.798
16	14 35 33.42	2.0035	16 26 10.1	6.706	16	16 14 53.72	2.1360	20 16 47.2	2.703
17	14 37 33.71	2.0062	16 32 50.3	6.634	17	16 17 1.96	2.1387	20 19 26.5	2.607
18	14 39 34.16	2.0088	16 39 26.2	6.563	18	16 19 10.36	2.1413	20 22 0.1	2.512
19	14 41 34.76	2.0114	16 45 57.9	6.492	19	16 21 18.92	2.1439	20 24 27.9	2.415
20	14 43 35.53	2.0141	16 52 25.2	6.418	20	16 23 27.63	2.1465	20 26 49.9	2.318
21	14 45 36.45	2.0168	16 58 48.1	6.346	21	16 25 36.50	2.1492	20 29 6.1	2.221
22	14 47 37.54	2.0195	17 5 6.7	6.273	22	16 27 45.53	2.1518	20 31 16.4	2.123
23	14 49 38.79	2.0221	S. 17 11 20.8	6.198	23	16 29 54.71	2.1543	S. 20 33 20.9	2.025
SUNDAY 10.					TUESDAY 12.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	14 51 40.19	2.0248	S. 17 17 30.5	6.124	0	16 32 4.04	2.1568	S. 20 35 19.4	1.926
1	14 53 41.76	2.0276	17 23 35.7	6.048	1	16 34 13.53	2.1594	20 37 12.0	1.827
2	14 55 43.50	2.0303	17 29 36.3	5.972	2	16 36 23.17	2.1619	20 38 58.7	1.728
3	14 57 45.40	2.0331	17 35 32.4	5.897	3	16 38 32.96	2.1644	20 40 39.4	1.628
4	14 59 47.47	2.0359	17 41 23.9	5.819	4	16 40 42.90	2.1669	20 42 14.0	1.527
5	15 1 49.71	2.0387	17 47 10.7	5.742	5	16 42 52.99	2.1693	20 43 42.6	1.427
6	15 3 52.11	2.0414	17 52 52.9	5.664	6	16 45 3.22	2.1718	20 45 5.2	1.326
7	15 5 54.68	2.0442	17 58 30.4	5.586	7	16 47 13.60	2.1742	20 46 21.7	1.224
8	15 7 57.41	2.0469	18 4 3.2	5.507	8	16 49 24.12	2.1765	20 47 32.1	1.122
9	15 10 0.31	2.0498	18 9 31.2	5.427	9	16 51 34.78	2.1789	20 48 36.4	1.021
10	15 12 3.38	2.0526	18 14 54.4	5.347	10	16 53 45.59	2.1813	20 49 34.6	0.918
11	15 14 6.62	2.0554	18 20 12.8	5.266	11	16 55 56.53	2.1835	20 50 26.6	0.815
12	15 16 10.03	2.0582	18 25 26.3	5.185	12	16 58 7.61	2.1858	20 51 12.4	0.712
13	15 18 13.61	2.0610	18 30 35.0	5.103	13	17 0 18.83	2.1882	20 51 52.0	0.608
14	15 20 17.35	2.0638	18 35 38.7	5.021	14	17 2 30.19	2.1904	20 52 25.4	0.504
15	15 22 21.26	2.0667	18 40 37.5	4.938	15	17 4 41.68	2.1927	20 52 52.5	0.399
16	15 24 25.35	2.0695	18 45 31.3	4.855	16	17 6 53.31	2.1949	20 53 13.3	0.295
17	15 26 29.60	2.0723	18 50 20.1	4.771	17	17 9 5.07	2.1971	20 53 27.9	0.191
18	15 28 34.02	2.0751	18 55 3.8	4.686	18	17 11 16.96	2.1992	20 53 36.2	-0.085
19	15 30 38.61	2.0779	18 59 42.4	4.602	19	17 13 28.97	2.2013	20 53 38.1	+0.021
20	15 32 43.37	2.0808	19 4 16.0	4.517	20	17 15 41.11	2.2034	20 53 33.7	0.127
21	15 34 48.30	2.0836	19 8 44.4	4.430	21	17 17 53.38	2.2055	20 53 22.9	0.233
22	15 36 53.40	2.0864	19 13 7.6	4.343	22	17 20 5.77	2.2075	20 53 5.8	0.339
23	15 38 58.67	2.0892	19 17 25.6	4.257	23	17 22 18.28	2.2094	20 52 42.2	0.447
24	15 41 4.10	2.0919	S. 19 21 38.4	4.169	24	17 24 30.90	2.2114	S. 20 52 12.2	0.553

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 13.					FRIDAY 15.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	17 24 30.90	2.2114	S. 20 52 12.2	0.553	0	19 12 24.09	2.2727	S. 18 19 22.0	5.831
1	17 26 43.65	2.2135	20 51 35.8	0.660	1	19 14 40.47	2.2733	18 13 28.9	5.939
2	17 28 56.52	2.2154	20 50 53.0	0.767	2	19 16 56.88	2.2738	18 7 29.3	6.048
3	17 31 9.50	2.2173	20 50 3.7	0.876	3	19 19 13.33	2.2744	18 1 23.1	6.157
4	17 33 22.60	2.2192	20 49 7.9	0.983	4	19 21 29.81	2.2749	17 55 10.5	6.264
5	17 35 35.81	2.2211	20 48 5.7	1.091	5	19 23 46.32	2.2754	17 48 51.4	6.372
6	17 37 49.13	2.2228	20 46 57.0	1.200	6	19 26 2.86	2.2759	17 42 25.9	6.479
7	17 40 2.55	2.2246	20.45 41.7	1.309	7	19 28 19.43	2.2764	17 35 53.9	6.587
8	17 42 16.08	2.2264	20 44 19.9	1.417	8	19 30 36.03	2.2768	17 29 15.5	6.693
9	17 44 29.72	2.2282	20 42 51.6	1.527	9	19 32 52.65	2.2773	17 22 30.7	6.800
10	17 46 43.46	2.2298	20 41 16.7	1.636	10	19 35 9.30	2.2778	17 15 39.5	6.906
11	17 48 57.30	2.2315	20 39 35.3	1.745	11	19 37 25.98	2.2782	17 8 42.0	7.012
12	17 51 11.24	2.2332	20 37 47.3	1.855	12	19 39 42.68	2.2785	17 1 38.1	7.118
13	17 53 25.28	2.2348	20 35 52.7	1.964	13	19 41 59.40	2.2789	16 54 27.9	7.222
14	17 55 39.41	2.2363	20 33 51.6	2.074	14	19 44 16.15	2.2793	16 47 11.5	7.326
15	17 57 53.64	2.2379	20 31 43.8	2.185	15	19 46 32.92	2.2797	16 39 48.8	7.430
16	18 0 7.96	2.2394	20 29 29.4	2.295	16	19 48 49.71	2.2800	16 32 19.9	7.534
17	18 2 22.37	2.2409	20 27 8.4	2.405	17	19 51 6.52	2.2803	16 24 44.7	7.637
18	18 4 36.87	2.2423	20 24 40.8	2.516	18	19 53 23.34	2.2806	16 17 3.4	7.740
19	18 6 51.45	2.2438	20 22 6.5	2.627	19	19 55 40.19	2.2809	16 9 15.9	7.843
20	18 9 6.12	2.2452	20 19 25.6	2.737	20	19 57 57.05	2.2812	16 1 22.3	7.945
21	18 11 20.87	2.2465	20 16 38.1	2.847	21	20 0 13.93	2.2814	15 53 22.6	8.046
22	18 13 35.70	2.2478	20 13 43.9	2.958	22	20 2 30.82	2.2817	15 45 16.8	8.147
23	18 15 50.61	2.2492	S. 20 10 43.1	3.068	23	20 4 47.73	2.2820	S. 15 37 5.0	8.247
THURSDAY 14.					SATURDAY 16.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	18 18 5.60	2.2505	S. 20 7 35.7	3.179	0	20 7 4.66	2.2823	S. 15 28 47.2	8.347
1	18 20 20.67	2.2518	20 4 21.6	3.291	1	20 9 21.60	2.2825	15 20 23.4	8.446
2	18 22 35.81	2.2529	20 1 0.8	3.402	2	20 11 38.56	2.2827	15 11 53.7	8.544
3	18 24 51.02	2.2541	19 57 33.3	3.513	3	20 13 55.53	2.2829	15 3 18.1	8.642
4	18 27 6.30	2.2553	19 53 59.2	3.624	4	20 16 12.51	2.2832	14 54 36.6	8.741
5	18 29 21.65	2.2564	19 50 18.4	3.735	5	20 18 29.51	2.2834	14 45 49.2	8.838
6	18 31 37.07	2.2575	19 46 11.0	3.846	6	20 20 46.52	2.2836	14 36 56.1	8.933
7	18 33 52.55	2.2585	19 42 36.9	3.957	7	20 23 3.54	2.2838	14 27 57.2	9.029
8	18 36 8.09	2.2596	19 38 36.1	4.068	8	20 25 20.57	2.2840	14 18 52.6	9.124
9	18 38 23.70	2.2607	19 34 28.7	4.179	9	20 27 37.62	2.2842	14 9 42.3	9.219
10	18 40 39.37	2.2616	19 30 14.6	4.290	10	20 29 54.67	2.2843	14 0 26.3	9.312
11	18 42 55.09	2.2625	19 25 53.9	4.400	11	20 32 11.74	2.2846	13 51 4.8	9.405
12	18 45 10.87	2.2635	19 21 26.6	4.511	12	20 34 28.82	2.2848	13 41 37.7	9.497
13	18 47 26.71	2.2644	19 16 52.6	4.622	13	20 36 45.91	2.2850	13 32 5.1	9.589
14	18 49 42.60	2.2653	19 12 11.9	4.733	14	20 39 3.02	2.2853	13 22 27.0	9.680
15	18 51 58.54	2.2661	19 7 24.6	4.843	15	20 41 20.14	2.2854	13 12 43.5	9.770
16	18 54 14.53	2.2669	19 2 30.7	4.953	16	20 43 37.27	2.2856	13 2 54.6	9.859
17	18 56 30.57	2.2677	18 57 30.2	5.063	17	20 45 54.41	2.2858	12 53 0.4	9.948
18	18 58 46.66	2.2685	18 52 23.1	5.174	18	20 48 11.56	2.2860	12 43 0.9	10.036
19	19 1 2.79	2.2693	18 47 9.3	5.284	19	20 50 28.73	2.2863	12 32 56.1	10.123
20	19 3 18.97	2.2700	18 41 49.0	5.393	20	20 52 45.91	2.2864	12 22 46.2	10.208
21	19 5 35.19	2.2707	18 36 22.1	5.503	21	20 55 3.10	2.2867	12 12 31.1	10.294
22	19 7 51.45	2.2713	18 30 48.6	5.612	22	20 57 20.31	2.2869	12 2 10.9	10.378
23	19 10 7.75	2.2720	18 25 8.6	5.722	23	20 59 37.53	2.2872	11 51 45.7	10.462
24	19 12 24.09	2.2727	S. 18 19 22.0	5.831	24	21 1 54.77	2.2874	S. 11 41 15.5	10.544

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 17.					TUESDAY 19.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	21 1 54.77	2.2874	S. 11 41 15.5	10.544	0	22 52 18.55	2.3211	S. 2 0 11.7	13.191
1	21 4 12.02	2.2877	11 30 40.4	10.626	1	22 54 37.86	2.3224	1 46 59.6	13.213
2	21 6 29.29	2.2880	11 20 0.4	10.707	2	22 56 57.24	2.3238	1 33 46.2	13.234
3	21 8 46.58	2.2883	11 9 15.6	10.787	3	22 59 16.71	2.3253	1 20 31.5	13.253
4	21 11 3.88	2.2885	10 58 26.0	10.866	4	23 1 36.27	2.3267	1 7 15.8	13.270
5	21 13 21.20	2.2888	10 47 31.7	10.943	5	23 3 55.91	2.3281	0 53 59.1	13.286
6	21 15 38.54	2.2892	10 36 32.8	11.020	6	23 6 15.64	2.3296	0 40 41.5	13.301
7	21 17 55.90	2.2895	10 25 29.3	11.097	7	23 8 35.46	2.3311	0 27 23.0	13.314
8	21 20 13.28	2.2898	10 14 21.2	11.173	8	23 10 55.37	2.3327	0 14 3.8	13.325
9	21 22 30.68	2.2902	10 3 8.6	11.246	9	23 13 15.38	2.3343	S. 0 0 44.0	13.334
10	21 24 48.10	2.2905	9 51 51.7	11.319	10	23 15 35.48	2.3358	N. 0 12 36.3	13.342
11	21 27 5.54	2.2908	9 40 30.4	11.391	11	23 17 55.68	2.3375	0 25 57.1	13.349
12	21 29 23.00	2.2913	9 29 4.8	11.462	12	23 20 15.98	2.3392	0 39 18.2	13.353
13	21 31 40.49	2.2918	9 17 35.0	11.532	13	23 22 36.38	2.3408	0 52 39.5	13.357
14	21 33 58.01	2.2923	9 6 1.0	11.600	14	23 24 56.88	2.3426	1 6 1.0	13.358
15	21 36 15.56	2.2927	8 54 23.0	11.667	15	23 27 17.49	2.3443	1 19 22.5	13.357
16	21 38 33.13	2.2932	8 42 40.9	11.734	16	23 29 38.20	2.3461	1 32 43.9	13.355
17	21 40 50.74	2.2937	8 30 54.9	11.799	17	23 31 59.02	2.3479	1 46 5.1	13.352
18	21 43 8.37	2.2942	8 19 5.0	11.864	18	23 34 19.95	2.3498	1 59 26.1	13.347
19	21 45 26.04	2.2948	8 7 11.2	11.927	19	23 36 40.99	2.3516	2 12 46.7	13.340
20	21 47 43.74	2.2953	7 55 13.7	11.989	20	23 39 2.14	2.3535	2 26 6.9	13.332
21	21 50 1.47	2.2958	7 43 12.5	12.050	21	23 41 23.41	2.3554	2 39 26.5	13.322
22	21 52 19.24	2.2965	7 31 7.7	12.109	22	23 43 44.79	2.3573	2 52 45.5	13.310
23	21 54 37.05	2.2971	S. 7 18 59.4	12.167	23	23 46 6.29	2.3593	N. 3 6 3.7	13.296
MONDAY 18.					WEDNESDAY 20.				
0	21 56 54.89	2.2977	S. 7 6 47.6	12.224	0	23 48 27.91	2.3613	N. 3 19 21.0	13.280
1	21 59 12.77	2.2984	6 54 32.5	12.280	1	23 50 49.65	2.3634	3 32 37.3	13.263
2	22 1 30.70	2.2992	6 42 14.0	12.335	2	23 53 11.52	2.3655	3 45 52.6	13.245
3	22 3 48.67	2.2998	6 29 52.3	12.388	3	23 55 33.51	2.3675	3 59 6.7	13.225
4	22 6 6.68	2.3006	6 17 27.5	12.440	4	23 57 55.62	2.3696	4 12 19.6	13.203
5	22 8 24.74	2.3013	6 4 59.5	12.491	5	0 0 17.86	2.3718	4 25 31.0	13.178
6	22 10 42.84	2.3022	5 52 28.6	12.540	6	0 2 40.23	2.3739	4 38 41.0	13.153
7	22 13 1.00	2.3030	5 39 54.7	12.588	7	0 5 2.73	2.3761	4 51 49.4	13.126
8	22 15 19.20	2.3038	5 27 18.0	12.635	8	0 7 25.36	2.3783	5 4 56.1	13.097
9	22 17 37.45	2.3047	5 14 38.5	12.680	9	0 9 48.12	2.3805	5 18 1.0	13.066
10	22 19 55.76	2.3056	5 1 56.4	12.724	10	0 12 11.02	2.3828	5 31 4.0	13.034
11	22 22 14.12	2.3064	4 49 11.6	12.767	11	0 14 34.05	2.3850	5 44 5.1	13.001
12	22 24 32.53	2.3073	4 36 24.3	12.808	12	0 16 57.22	2.3873	5 57 4.1	12.964
13	22 26 51.00	2.3084	4 23 34.6	12.848	13	0 19 20.53	2.3896	6 10 0.8	12.927
14	22 29 9.54	2.3095	4 10 42.5	12.887	14	0 21 43.97	2.3919	6 22 55.3	12.888
15	22 31 28.14	2.3105	3 57 48.2	12.923	15	0 24 7.56	2.3943	6 35 47.3	12.847
16	22 33 46.80	2.3115	3 44 51.7	12.959	16	0 26 31.28	2.3966	6 48 36.9	12.804
17	22 36 5.52	2.3126	3 31 53.1	12.993	17	0 28 55.15	2.3990	7 1 23.8	12.759
18	22 38 24.31	2.3138	3 18 52.5	13.026	18	0 31 19.16	2.4013	7 14 8.0	12.713
19	22 40 43.17	2.3149	3 5 50.0	13.057	19	0 33 43.31	2.4037	7 26 49.4	12.666
20	22 43 2.10	2.3161	2 52 45.7	13.087	20	0 36 7.60	2.4061	7 39 27.9	12.617
21	22 45 21.10	2.3173	2 39 39.6	13.116	21	0 38 32.04	2.4086	7 52 3.4	12.565
22	22 47 40.18	2.3186	2 26 31.8	13.143	22	0 40 56.63	2.4110	8 4 35.7	12.512
23	22 49 59.33	2.3198	2 13 22.5	13.168	23	0 43 21.36	2.4133	8 17 4.9	12.458
24	22 52 18.55	2.3211	S. 2 0 11.7	13.191	24	0 45 46.23	2.4158	N. 8 29 30.7	12.402

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 21.					SATURDAY 23.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	0 45 46.23	2.4158	N. 8 29 30.7	12.402	0	2 44 25.75	2.5196	N. 16 50 41.1	7.952
1	0 48 11.25	2.4183	8 41 53.1	12.344	1	2 46 56.97	2.5209	16 58 34.5	7.828
2	0 50 36.42	2.4208	8 54 12.0	12.284	2	2 49 28.26	2.5221	17 6 20.5	7.704
3	0 53 1.74	2.4233	9 6 27.2	12.223	3	2 51 59.62	2.5233	17 13 59.0	7.580
4	0 55 27.21	2.4257	9 18 38.7	12.160	4	2 54 31.06	2.5246	17 21 30.1	7.455
5	0 57 52.82	2.4281	9 30 46.4	12.096	5	2 57 2.57	2.5256	17 28 53.6	7.328
6	1 0 18.58	2.4306	9 42 50.2	12.030	6	2 59 34.13	2.5266	17 36 9.5	7.201
7	1 2 44.49	2.4331	9 54 50.0	11.962	7	3 2 5.76	2.5276	17 43 17.7	7.072
8	1 5 10.55	2.4356	10 6 45.7	11.893	8	3 4 37.44	2.5285	17 50 18.2	6.944
9	1 7 36.76	2.4381	10 18 37.2	11.822	9	3 7 9.18	2.5293	17 57 11.0	6.816
10	1 10 3.12	2.4406	10 30 24.4	11.750	10	3 9 40.96	2.5300	18 3 56.1	6.686
11	1 12 29.63	2.4431	10 42 7.2	11.676	11	3 12 12.78	2.5307	18 10 33.3	6.554
12	1 14 56.29	2.4455	10 53 45.5	11.600	12	3 14 44.65	2.5314	18 17 2.6	6.423
13	1 17 23.09	2.4479	11 5 19.2	11.523	13	3 17 16.55	2.5319	18 23 24.1	6.292
14	1 19 50.04	2.4504	11 16 48.2	11.444	14	3 19 48.48	2.5324	18 29 37.6	6.159
15	1 22 17.14	2.4528	11 28 12.5	11.364	15	3 22 20.44	2.5328	18 35 43.2	6.026
16	1 24 44.38	2.4553	11 39 31.9	11.282	16	3 24 52.42	2.5332	18 41 40.7	5.892
17	1 27 11.77	2.4577	11 50 46.4	11.199	17	3 27 24.42	2.5335	18 47 30.2	5.757
18	1 29 39.30	2.4601	12 1 55.8	11.114	18	3 29 56.44	2.5337	18 53 11.6	5.623
19	1 32 6.98	2.4625	12 13 0.1	11.027	19	3 32 28.46	2.5338	18 58 45.0	5.488
20	1 34 34.80	2.4648	12 23 59.1	10.939	20	3 35 0.49	2.5338	19 4 10.2	5.352
21	1 37 2.76	2.4672	12 34 52.8	10.850	21	3 37 32.52	2.5338	19 9 27.3	5.217
22	1 39 30.86	2.4695	12 45 41.1	10.760	22	3 40 4.54	2.5336	19 14 36.2	5.081
23	1 41 59.10	2.4719	N. 12 56 24.0	10.668	23	3 42 36.55	2.5334	N. 19 19 37.0	4.944
FRIDAY 22.					SUNDAY 24.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	1 44 27.49	2.4743	N. 13 7 1.3	10.574	0	3 45 8.55	2.5332	N. 19 24 29.5	4.807
1	1 46 56.01	2.4765	13 17 32.9	10.479	1	3 47 40.53	2.5328	19 29 13.8	4.670
2	1 49 24.67	2.4788	13 27 58.8	10.383	2	3 50 12.49	2.5325	19 33 49.9	4.532
3	1 51 53.46	2.4809	13 38 18.9	10.285	3	3 52 44.43	2.5320	19 38 17.7	4.394
4	1 54 22.38	2.4832	13 48 33.0	10.186	4	3 55 16.33	2.5313	19 42 37.2	4.256
5	1 56 51.44	2.4854	13 58 41.2	10.086	5	3 57 48.19	2.5307	19 46 48.4	4.117
6	1 59 20.63	2.4875	14 8 43.3	9.984	6	4 0 20.01	2.5299	19 50 51.3	3.979
7	2 1 49.94	2.4896	14 18 39.3	9.882	7	4 2 51.78	2.5291	19 54 45.9	3.841
8	2 4 19.38	2.4918	14 28 29.1	9.778	8	4 5 23.50	2.5282	19 58 32.2	3.702
9	2 6 48.95	2.4938	14 38 12.6	9.672	9	4 7 55.16	2.5272	20 2 10.1	3.563
10	2 9 18.64	2.4958	14 47 49.7	9.564	10	4 10 26.76	2.5262	20 5 39.7	3.424
11	2 11 48.44	2.4978	14 57 20.3	9.456	11	4 12 58.30	2.5250	20 9 1.0	3.286
12	2 14 18.37	2.4993	15 6 44.4	9.347	12	4 15 29.76	2.5238	20 12 14.0	3.147
13	2 16 48.41	2.5017	15 16 1.9	9.237	13	4 18 1.15	2.5225	20 15 18.6	3.007
14	2 19 18.57	2.5036	15 25 12.8	9.126	14	4 20 32.46	2.5211	20 18 14.9	2.868
15	2 21 48.84	2.5053	15 34 17.0	9.013	15	4 23 3.68	2.5196	20 21 2.8	2.729
16	2 24 19.21	2.5071	15 43 14.3	8.898	16	4 25 34.81	2.5180	20 23 42.4	2.591
17	2 26 49.69	2.5088	15 52 4.8	8.784	17	4 28 5.84	2.5163	20 26 13.7	2.453
18	2 29 20.27	2.5105	16 0 48.4	8.668	18	4 30 36.77	2.5147	20 28 36.7	2.313
19	2 31 50.95	2.5122	16 9 25.0	8.552	19	4 33 7.60	2.5128	20 30 51.3	2.174
20	2 34 21.73	2.5138	16 17 54.6	8.433	20	4 35 38.31	2.5109	20 32 57.6	2.037
21	2 36 52.60	2.5153	16 26 17.0	8.311	21	4 38 8.91	2.5090	20 34 55.7	1.898
22	2 39 23.57	2.5168	16 34 32.3	8.194	22	4 40 39.39	2.5069	20 36 45.4	1.760
23	2 41 54.62	2.5182	16 42 40.3	8.073	23	4 43 9.74	2.5048	20 38 26.9	1.622
24	2 44 25.75	2.5196	N. 16 50 41.1	7.952	24	4 45 39.96	2.5026	N. 20 40 0.1	1.485

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 25.					WEDNESDAY 27.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	4 45 39.96	2.5026	N.20 40 0.1	1.485	0	6 41 58.21	2.3228	N.19 22 17.9	4.462
1	4 48 10.05	2.5003	20 41 25.1	1.348	1	6 44 17.44	2.3181	19 17 47.0	4.567
2	4 50 40.00	2.4980	20 42 41.9	1.211	2	6 46 36.38	2.3132	19 13 9.9	4.671
3	4 53 9.81	2.4956	20 43 50.4	1.074	3	6 48 55.02	2.3083	19 8 26.5	4.774
4	4 55 39.47	2.4931	20 44 50.8	0.938	4	6 51 13.38	2.3036	19 3 37.0	4.876
5	4 58 8.98	2.4904	20 45 43.0	0.802	5	6 53 31.45	2.2988	18 58 41.4	4.977
6	5 0 38.32	2.4878	20 46 27.1	0.667	6	6 55 49.23	2.2939	18 53 39.7	5.077
7	5 3 7.51	2.4851	20 47 3.1	0.532	7	6 58 6.72	2.2890	18 48 32.1	5.177
8	5 5 36.53	2.4823	20 47 31.0	0.397	8	7 0 23.91	2.2841	18 43 18.5	5.276
9	5 8 5.38	2.4793	20 47 50.8	0.262	9	7 2 40.81	2.2792	18 37 59.0	5.373
10	5 10 34.05	2.4764	20 48 2.5	+0.129	10	7 4 57.41	2.2743	18 32 33.7	5.469
11	5 13 2.55	2.4734	20 48 6.3	-0.003	11	7 7 13.72	2.2694	18 27 2.7	5.564
12	5 15 30.86	2.4703	20 48 2.1	0.137	12	7 9 29.74	2.2645	18 21 26.0	5.659
13	5 17 58.98	2.4672	20 47 49.9	0.269	13	7 11 45.46	2.2595	18 15 43.6	5.753
14	5 20 26.92	2.4640	20 47 29.8	0.401	14	7 14 0.88	2.2546	18 9 55.6	5.846
15	5 22 54.66	2.4606	20 47 1.8	0.532	15	7 16 16.01	2.2497	18 4 2.1	5.937
16	5 25 22.19	2.4573	20 46 26.0	0.662	16	7 18 30.84	2.2448	17 58 3.1	6.028
17	5 27 49.53	2.4539	20 45 42.4	0.792	17	7 20 45.38	2.2398	17 51 58.7	6.118
18	5 30 16.66	2.4504	20 44 51.0	0.922	18	7 22 59.62	2.2349	17 45 48.9	6.207
19	5 32 43.58	2.4468	20 43 51.8	1.051	19	7 25 13.57	2.2300	17 39 33.8	6.295
20	5 35 10.28	2.4432	20 42 44.9	1.179	20	7 27 27.22	2.2251	17 33 13.5	6.382
21	5 37 36.76	2.4395	20 41 30.3	1.307	21	7 29 40.58	2.2202	17 26 48.0	6.468
22	5 40 3.02	2.4358	20 40 8.1	1.433	22	7 31 53.64	2.2152	17 20 17.3	6.553
23	5 42 29.06	2.4320	N.20 38 38.3	1.560	23	7 34 6.40	2.2103	N.17 13 41.6	6.637
TUESDAY 26.					THURSDAY 28.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	5 44 54.86	2.4282	N.20 37 0.9	1.686	0	7 36 18.87	2.2054	N.17 7 0.9	6.720
1	5 47 20.44	2.4243	20 35 16.0	1.810	1	7 38 31.05	2.2006	17 0 15.2	6.802
2	5 49 45.78	2.4203	20 33 23.7	1.933	2	7 40 42.94	2.1957	16 53 24.6	6.884
3	5 52 10.88	2.4163	20 31 24.0	2.057	3	7 42 54.53	2.1908	16 46 29.1	6.964
4	5 54 35.74	2.4123	20 29 16.9	2.180	4	7 45 5.84	2.1860	16 39 28.9	7.042
5	5 57 0.35	2.4082	20 27 2.4	2.302	5	7 47 16.85	2.1812	16 32 24.0	7.121
6	5 59 24.72	2.4041	20 24 40.6	2.423	6	7 49 27.58	2.1764	16 25 14.4	7.199
7	6 1 48.84	2.3998	20 22 11.6	2.543	7	7 51 38.02	2.1716	16 18 0.1	7.276
8	6 4 12.70	2.3956	20 19 35.4	2.662	8	7 53 48.17	2.1668	16 10 41.3	7.351
9	6 6 36.31	2.3913	20 16 52.1	2.782	9	7 55 58.04	2.1621	16 3 18.0	7.426
10	6 8 59.66	2.3870	20 14 1.6	2.900	10	7 58 7.62	2.1573	15 55 50.2	7.500
11	6 11 22.75	2.3826	20 11 4.1	3.017	11	8 0 16.92	2.1527	15 48 18.0	7.572
12	6 13 45.57	2.3782	20 7 59.6	3.132	12	8 2 25.94	2.1480	15 40 41.5	7.644
13	6 16 8.13	2.3738	20 4 48.2	3.248	13	8 4 34.68	2.1433	15 33 0.7	7.715
14	6 18 30.42	2.3693	20 1 29.8	3.363	14	8 6 43.13	2.1386	15 25 15.7	7.785
15	6 20 52.45	2.3648	19 58 4.6	3.477	15	8 8 51.31	2.1340	15 17 26.5	7.854
16	6 23 14.20	2.3603	19 54 32.6	3.589	16	8 10 59.21	2.1294	15 9 33.2	7.922
17	6 25 35.68	2.3557	19 50 53.9	3.702	17	8 13 6.84	2.1249	15 1 35.9	7.988
18	6 27 56.88	2.3510	19 47 8.4	3.813	18	8 15 14.20	2.1203	14 53 34.6	8.055
19	6 30 17.80	2.3464	19 43 16.3	3.923	19	8 17 21.28	2.1158	14 45 29.3	8.121
20	6 32 38.45	2.3418	19 39 17.6	4.033	20	8 19 28.09	2.1113	14 37 20.1	8.185
21	6 34 58.82	2.3371	19 35 12.3	4.142	21	8 21 34.63	2.1068	14 29 7.1	8.248
22	6 37 18.90	2.3323	19 31 0.6	4.249	22	8 23 40.91	2.1024	14 20 50.3	8.311
23	6 39 38.70	2.3276	19 26 42.4	4.356	23	8 25 46.92	2.0980	14 12 29.8	8.372
24	6 41 58.21	2.3228	N.19 22 17.9	4.462	24	8 27 52.67	2.0937	N.14 4 5.6	8.433

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.							
FRIDAY 29.							SUNDAY 31.													
	h	m	s	s	°	'		h	m	s	s	°	'							
0	8	27	52.67	2.0937	N. 14	4 5.6	8.433	0	10	4	2.81	1.9297	N. 6	25 36.4						
1	8	29	58.16	2.0893	13	55 37.8	8.492	1	10	5	58.52	1.9273	6	15 14.3						
2	8	32	3.38	2.0849	13	47 6.5	8.552	2	10	7	54.08	1.9249	6	4 51.0						
3	8	34	8.35	2.0807	13	38 31.6	8.611	3	10	9	49.51	1.9228	5	54 26.5						
4	8	36	13.07	2.0765	13	29 53.2	8.668	4	10	11	44.81	1.9205	5	44 0.9						
5	8	38	17.53	2.0723	13	21 11.5	8.723	5	10	13	39.97	1.9183	5	33 34.2						
6	8	40	21.74	2.0681	13	12 26.4	8.779	6	10	15	35.01	1.9163	5	23 6.4						
7	8	42	25.70	2.0639	13	3 38.0	8.833	7	10	17	29.92	1.9143	5	12 37.6						
8	8	44	29.41	2.0598	12	54 46.4	8.887	8	10	19	24.72	1.9123	5	2 7.8						
9	8	46	32.88	2.0558	12	45 51.6	8.940	9	10	21	19.39	1.9103	4	51 37.1						
10	8	48	36.11	2.0518	12	36 53.6	8.992	10	10	23	13.95	1.9083	4	41 5.5						
11	8	50	39.09	2.0477	12	27 52.5	9.043	11	10	25	8.39	1.9064	4	30 33.1						
12	8	52	41.83	2.0438	12	18 48.4	9.093	12	10	27	2.72	1.9046	4	19 59.9						
13	8	54	44.34	2.0399	12	9 41.3	9.142	13	10	28	56.94	1.9028	4	9 26.0						
14	8	56	46.62	2.0360	12	0 31.3	9.191	14	10	30	51.06	1.9012	3	58 51.3						
15	8	58	48.66	2.0322	11	51 18.4	9.239	15	10	32	45.08	1.8995	3	48 16.0						
16	9	0	50.48	2.0284	11	42 2.6	9.286	16	10	34	39.00	1.8978	3	37 40.0						
17	9	2	52.07	2.0246	11	32 44.1	9.332	17	10	36	32.82	1.8963	3	27 3.5						
18	9	4	53.43	2.0208	11	23 22.8	9.377	18	10	38	26.55	1.8947	3	16 26.4						
19	9	6	54.57	2.0172	11	13 58.9	9.420	19	10	40	20.18	1.8932	3	5 48.8						
20	9	8	55.50	2.0136	11	4 32.4	9.464	20	10	42	13.73	1.8918	2	55 10.8						
21	9	10	56.20	2.0099	10	55 3.2	9.507	21	10	44	7.19	1.8903	2	44 32.3						
22	9	12	56.69	2.0064	10	45 31.5	9.549	22	10	46	0.57	1.8890	2	33 53.5						
23	9	14	56.97	2.0029	N. 10	35 57.3	9.590	23	10	47	53.87	1.8877	N. 2	23 14.3						
SATURDAY 30.							MONDAY, APRIL 1.													
0	9	16	57.04	1.9994	N. 10	26 20.7	9.630	0	10	49	47.09	1.8864	N. 2	12 34.9						
1	9	18	56.90	1.9960	10	16 41.7	9.669													
2	9	20	56.56	1.9927	10	7 0.4	9.707													
3	9	22	56.02	1.9893	9	57 16.8	9.745													
4	9	24	55.28	1.9860	9	47 31.0	9.782													
5	9	26	54.34	1.9828	9	37 42.9	9.819													
6	9	28	53.21	1.9796	9	27 52.7	9.854													
7	9	30	51.89	1.9764	9	18 0.4	9.888													
8	9	32	50.38	1.9733	9	8 6.1	9.922													
9	9	34	48.69	1.9703	8	58 9.8	9.955													
10	9	36	46.81	1.9672	8	48 11.5	9.987													
11	9	38	44.75	1.9642	8	38 11.3	10.018													
12	9	40	42.51	1.9613	8	28 9.3	10.049													
13	9	42	40.10	1.9583	8	18 5.4	10.079													
14	9	44	37.51	1.9555	8	7 59.8	10.108													
15	9	46	34.76	1.9527	7	57 52.5	10.136													
16	9	48	31.84	1.9499	7	47 43.5	10.164													
17	9	50	28.75	1.9472	7	37 32.8	10.191													
18	9	52	25.50	1.9446	7	27 20.6	10.217													
19	9	54	22.10	1.9420	7	17 6.8	10.242													
20	9	56	18.54	1.9394	7	6 51.5	10.267													
21	9	58	14.83	1.9369	6	56 34.8	10.290													
22	10	0	10.97	1.9344	6	46 16.7	10.313													
23	10	2	6.96	1.9320	6	35 57.2	10.336													
24	10	4	2.81	1.9297	N. 6	25 36.4	10.357													
PHASES OF THE MOON.																				
○	Full Moon	March		d	h	m														
☾	Last Quarter	13		1	6.2															
●	New Moon	20		0	53.0															
☾	First Quarter	26		16	38.9															
☾	Apogee	March		d	h															
☾	Perigee	20		22.1																

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	<i>α</i> Arietis W.	80 38 53	2762	82 14 11	2771	83 49 17	2779	85 24 13	2786
	Aldebaran W.	47 23 40	2739	48 59 28	2747	50 35 6	2754	52 10 34	2762
	Regulus E.	32 48 44	2788	31 14 0	2804	29 39 38	2821	28 5 36	2839
	Spica E.	86 20 53	2716	84 44 35	2725	83 8 29	2734	81 32 34	2742
2	<i>α</i> Arietis W.	93 16 7	2829	94 49 57	2838	96 23 36	2846	97 57 4	2854
	Aldebaran W.	60 5 22	2801	61 39 49	2808	63 14 7	2815	64 48 15	2823
	Spica E.	73 35 47	2784	72 0 59	2792	70 26 21	2800	68 51 53	2808
3	Aldebaran W.	72 36 28	2860	74 9 38	2867	75 42 38	2874	77 15 30	2882
	Pollux W.	31 41 22	3131	33 8 54	3117	34 36 43	3105	36 4 47	3094
	Spica E.	61 2 9	2847	59 28 42	2855	57 55 25	2862	56 22 17	2869
	Antares E.	106 28 44	2869	104 55 46	2876	103 22 57	2883	101 50 17	2891
4	Aldebaran W.	84 57 30	2917	86 29 27	2924	88 1 15	2931	89 32 55	2938
	Pollux W.	43 27 30	3069	44 56 17	3068	46 25 5	3066	47 53 56	3066
	Spica E.	48 39 0	2905	47 6 48	2912	45 34 45	2919	44 2 50	2926
	Antares E.	94 9 14	2926	92 37 28	2933	91 5 51	2940	89 34 23	2947
	JUPITER E.	124 22 35	2969	122 51 43	2975	121 20 59	2981	119 50 23	2988
5	Aldebaran W.	97 9 7	2970	98 39 57	2977	100 10 38	2983	101 41 12	2989
	Pollux W.	55 17 59	3073	56 46 41	3076	58 15 20	3078	59 43 57	3081
	Regulus W.	18 20 1	3148	19 47 13	3133	21 14 43	3119	22 42 29	3107
	Spica E.	36 25 25	2959	34 54 21	2965	33 23 25	2971	31 52 36	2977
	Antares E.	81 59 9	2980	80 28 31	2986	78 58 1	2993	77 27 39	2999
	JUPITER E.	112 19 28	3020	110 49 40	3026	109 20 0	3032	107 50 27	3039
	SATURN E.	118 9 59	2993	116 39 38	3000	115 9 26	3006	113 39 21	3013
6	Pollux W.	67 6 3	3097	68 34 16	3101	70 2 25	3104	71 30 30	3108
	MARS W.	31 1 39	3095	32 29 55	3083	33 58 26	3073	35 27 9	3065
	Regulus W.	30 3 58	3082	31 32 30	3082	33 1 2	3081	34 29 35	3081
	Antares E.	69 57 47	3030	68 28 11	3036	66 58 43	3041	65 29 21	3047
	JUPITER E.	100 24 32	3066	98 55 41	3072	97 26 57	3077	95 58 19	3082
	SATURN E.	106 10 45	3040	104 41 22	3045	103 12 5	3050	101 42 54	3056
7	Pollux W.	78 49 50	3125	80 17 29	3128	81 45 5	3131	83 12 37	3134
	MARS W.	42 52 38	3043	44 21 58	3041	45 51 20	3038	47 20 46	3036
	Regulus W.	41 52 8	3087	43 20 33	3088	44 48 57	3090	46 17 19	3091
	Antares E.	58 4 14	3073	56 35 32	3078	55 6 56	3083	53 38 26	3088
	JUPITER E.	88 36 36	3104	87 8 31	3108	85 40 31	3111	84 12 35	3115
	SATURN E.	94 18 29	3078	92 49 52	3081	91 21 19	3084	89 52 50	3088
	<i>α</i> Aquilæ E.	109 20 10	3511	107 59 58	3508	106 39 43	3505	105 19 24	3502
8	Pollux W.	90 29 27	3147	91 56 40	3149	93 23 49	3151	94 50 57	3153
	MARS W.	54 48 17	3032	56 17 50	3031	57 47 23	3030	59 16 58	3030
	Regulus W.	53 38 42	3098	55 6 54	3100	56 35 4	3100	58 3 14	3100
	Antares E.	46 17 20	3110	44 49 23	3115	43 21 32	3119	41 53 46	3124
	JUPITER E.	76 53 55	3129	75 26 20	3132	73 58 49	3135	72 31 19	3133
	SATURN E.	82 31 27	3102	81 3 20	3104	79 35 16	3105	78 7 13	3107
	<i>α</i> Aquilæ E.	98 37 10	3492	97 16 37	3492	95 56 4	3491	94 35 30	3490
9	Pollux W.	102 6 9	3159	103 33 7	3159	105 0 5	3160	106 27 2	3160

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	α Arietis	W.	86 58 58	2795	88 33 32	2804	90 7 54	2812	91 42 6	2821
	Aldebaran	W.	53 45 52	2770	55 20 59	2777	56 55 57	2785	58 30 44	2792
	Regulus	E.	26 31 57	2859	24 58 46	2882	23 26 4	2906	21 53 52	2931
	Spica	E.	79 56 50	2751	78 21 18	2760	76 45 57	2768	75 10 47	2775
2	α Arietis	W.	99 30 22	2862	101 3 29	2871	102 36 25	2879	104 9 11	2887
	Aldebaran	W.	66 22 13	2839	67 56 1	2838	69 29 39	2845	71 3 8	2852
	Spica	E.	67 17 36	2816	65 43 29	2824	64 9 33	2831	62 35 46	2839
3	Aldebaran	W.	78 48 12	2889	80 20 45	2896	81 53 9	2903	83 25 24	2910
	Pollux	W.	37 33 4	3087	39 1 30	3080	40 30 4	3075	41 58 45	3071
	Spica	E.	54 49 19	2876	53 16 30	2884	51 43 51	2891	50 11 21	2898
	Antares	E.	100 17 46	2898	98 45 24	2905	97 13 12	2912	95 41 9	2919
4	Aldebaran	W.	91 4 26	2944	92 35 49	2951	94 7 3	2958	95 38 9	2964
	Pollux	W.	49 22 47	3067	50 51 37	3068	52 20 26	3069	53 49 14	3071
	Spica	E.	42 31 4	2933	40 59 27	2939	39 27 58	2946	37 56 37	2953
	Antares	E.	88 3 3	2954	86 31 52	2960	85 0 50	2966	83 29 55	2973
	JUPITER	E.	118 19 56	2995	116 49 37	3001	115 19 26	3008	113 49 23	3014
5	Aldebaran	W.	103 11 38	2996	104 41 56	3001	106 12 7	3007	107 42 11	3013
	Pollux	W.	61 12 30	3084	62 40 59	3087	64 9 24	3090	65 37 45	3093
	Regulus	W.	24 10 30	3098	25 38 42	3091	27 7 3	3087	28 35 29	3084
	Spica	E.	30 21 55	2983	28 51 21	2989	27 20 55	2995	25 50 36	3001
	Antares	E.	75 57 25	3005	74 27 19	3012	72 57 21	3018	71 27 30	3024
	JUPITER	E.	106 21 2	3044	104 51 44	3051	103 22 34	3056	101 53 30	3060
	SATURN	E.	112 9 24	3018	110 39 34	3024	109 9 51	3029	107 40 15	3034
6	Pollux	W.	72 58 30	3111	74 26 26	3114	75 54 18	3118	77 22 6	3121
	MARS	W.	36 56 2	3059	38 25 2	3054	39 54 9	3049	41 23 21	3045
	Regulus	W.	35 58 8	3082	37 26 40	3083	38 55 11	3084	40 23 40	3085
	Antares	E.	64 0 6	3052	62 30 58	3058	61 1 57	3063	59 33 2	3069
	JUPITER	E.	94 29 47	3087	93 1 21	3091	91 33 1	3096	90 4 46	3100
	SATURN	E.	100 13 50	3060	98 44 52	3065	97 15 59	3069	95 47 11	3073
7	Pollux	W.	84 40 6	3137	86 7 31	3140	87 34 52	3142	89 2 11	3144
	MARS	W.	48 50 14	3035	50 19 43	3034	51 49 13	3033	53 18 45	3033
	Regulus	W.	47 45 39	3093	49 13 57	3095	50 42 13	3096	52 10 28	3096
	Antares	E.	52 10 2	3092	50 41 43	3097	49 13 30	3101	47 45 22	3106
	JUPITER	E.	82 44 44	3119	81 16 57	3121	79 49 13	3124	78 21 32	3127
	SATURN	E.	88 24 26	3091	86 56 6	3094	85 27 50	3097	83 59 37	3100
	α Aquilæ	E.	103 59 3	3499	102 38 38	3497	101 18 11	3495	99 57 41	3494
8	Pollux	W.	96 18 3	3154	97 45 7	3156	99 12 9	3157	100 39 10	3158
	MARS	W.	60 46 33	3030	62 16 9	3028	63 45 47	3027	65 15 26	3026
	Regulus	W.	59 31 24	3101	60 59 33	3101	62 27 41	3101	63 55 50	3100
	Antares	E.	40 26 5	3128	38 58 29	3132	37 30 58	3137	36 3 33	3141
	JUPITER	E.	71 3 50	3135	69 36 23	3137	68 8 58	3137	66 41 33	3137
	SATURN	E.	76 39 12	3107	75 11 11	3108	73 43 12	3109	72 15 14	3110
	α Aquilæ	E.	93 14 55	3490	91 54 20	3490	90 33 45	3490	89 13 10	3490
9	Pollux	W.	107 53 59	3160	109 20 56	3160	110 47 53	3159	112 14 51	3158

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
9	MARS	W.	66 45 6	3025	68 14 48	3024	69 44 31	3022	71 14 17	3020
	Regulus	W.	65 24 0	3100	66 52 10	3099	68 20 21	3097	69 48 34	3095
	Antares	E.	34 36 13	3147	33 9 0	3152	31 41 53	3158	30 14 53	3165
	JUPITER	E.	65 14 8	3137	63 46 43	3137	62 19 18	3136	60 51 52	3135
	SATURN	E.	70 47 17	3111	69 19 21	3110	67 51 24	3109	66 23 26	3108
	<i>α</i> Aquilæ	E.	87 52 36	3492	86 32 3	3492	85 11 30	3493	83 50 58	3495
	SUN	E.	134 22 40	3488	133 2 2	3486	131 41 23	3484	130 20 41	3482
10	MARS	W.	78 43 47	3007	80 13 51	3003	81 44 0	2999	83 14 14	2995
	Regulus	W.	77 10 19	3082	78 38 50	3078	80 7 25	3074	81 36 6	3070
	Spica	W.	23 10 59	3063	24 39 54	3060	26 8 53	3056	27 37 58	3051
	JUPITER	E.	53 34 17	3125	52 6 38	3122	50 38 55	3118	49 11 7	3114
	SATURN	E.	59 3 5	3097	57 34 52	3094	56 6 36	3091	54 38 15	3087
	<i>α</i> Aquilæ	E.	77 8 42	3503	75 48 21	3505	74 28 2	3508	73 7 46	3511
	SUN	E.	123 36 25	3465	122 15 22	3460	120 54 13	3455	119 32 59	3450
11	MARS	W.	90 46 48	2969	92 17 39	2964	93 48 37	2957	95 19 44	2950
	Regulus	W.	89 1 0	3042	90 30 20	3035	91 59 49	3028	93 29 27	3021
	Spica	W.	35 4 51	3023	36 34 35	3016	38 4 28	3009	39 34 30	3001
	JUPITER	E.	41 50 53	3090	40 22 31	3084	38 54 2	3078	37 25 25	3072
	SATURN	E.	47 15 9	3061	45 46 12	3056	44 17 8	3049	42 47 56	3042
	<i>α</i> Aquilæ	E.	66 27 24	3531	65 7 34	3537	63 47 51	3543	62 28 14	3550
	SUN	E.	112 45 12	3418	111 23 16	3410	110 1 11	3401	108 38 56	3393
12	MARS	W.	102 57 37	2911	104 29 42	2902	106 1 58	2893	107 34 26	2883
	Regulus	W.	101 0 7	2977	102 30 49	2966	104 1 44	2956	105 32 52	2946
	Spica	W.	47 7 16	2955	48 38 25	2945	50 9 47	2935	51 41 21	2924
	JUPITER	E.	30 0 20	3036	28 30 52	3029	27 1 16	3022	25 31 31	3015
	SATURN	E.	35 19 40	3003	33 49 31	2995	32 19 12	2986	30 48 42	2977
	<i>α</i> Aquilæ	E.	55 52 30	3602	54 33 58	3617	53 15 42	3633	51 57 43	3652
	SUN	E.	101 45 2	3343	100 21 40	3331	98 58 5	3319	97 34 16	3306
13	Regulus	W.	113 12 6	2886	114 44 43	2873	116 17 37	2859	117 50 48	2845
	Spica	W.	59 22 58	2862	60 56 6	2848	62 29 32	2834	64 3 16	2819
	SUN	E.	90 31 24	3239	89 6 1	3224	87 40 20	3209	86 14 21	3193
14	Spica	W.	71 56 47	2742	73 32 31	2725	75 8 37	2708	76 45 6	2692
	Antares	W.	26 59 55	2844	28 33 26	2818	30 7 30	2793	31 42 7	2769
	SUN	E.	78 59 35	3109	77 31 36	3091	76 3 16	3073	74 34 33	3055
15	Spica	W.	84 53 15	2603	86 32 6	2585	88 11 22	2566	89 51 3	2548
	Antares	W.	39 42 59	2655	41 20 39	2634	42 58 48	2612	44 37 26	2591
	SUN	E.	67 5 15	2960	65 34 12	2940	64 2 44	2920	62 30 51	2901
16	Spica	W.	98 15 59	2453	99 58 18	2435	101 41 3	2416	103 24 15	2397
	Antares	W.	52 57 53	2487	54 39 25	2467	56 21 24	2447	58 3 52	2427
	JUPITER	W.	21 3 4	2548	22 43 10	2523	24 23 50	2499	26 5 5	2475
	SUN	E.	54 45 6	2801	53 10 40	2782	51 35 48	2763	50 0 31	2743
17	Antares	W.	66 43 11	2331	68 28 25	2313	70 14 6	2295	72 0 13	2277
	JUPITER	W.	34 39 23	2367	36 23 45	2347	38 8 36	2328	39 53 55	2309
	SATURN	W.	29 39 43	2354	31 24 24	2333	33 9 35	2313	34 55 15	2294

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			"		"		"		"	
9	MARS	W.	72 44 5	3018	74 13 56	3016	75 43 49	3013	77 13 46	3009
	Regulus	W.	71 16 50	3093	72 45 8	3091	74 13 28	3088	75 41 52	3085
	Antares	E.	28 48 1	3173	27 21 19	3181	25 54 47	3191	24 28 27	3201
	JUPITER	E.	59 24 25	3134	57 56 57	3132	56 29 26	3130	55 1 53	3128
	SATURN	E.	64 55 26	3107	63 27 25	3105	61 59 21	3102	60 31 14	3100
	α Aquilæ	E.	82 30 28	3496	81 9 59	3497	79 49 32	3498	78 29 6	3500
	SUN	E.	128 59 57	3479	127 39 9	3476	126 18 19	3472	124 57 24	3469
10	MARS	W.	84 44 33	2991	86 14 57	2986	87 45 27	2981	89 16 4	2975
	Regulus	W.	83 4 52	3065	84 33 44	3060	86 2 42	3054	87 31 47	3048
	Spica	W.	29 7 8	3047	30 36 23	3041	32 5 45	3035	33 35 14	3029
	JUPITER	E.	47 43 15	3110	46 15 18	3106	44 47 16	3101	43 19 8	3096
	SATURN	E.	53 9 49	3082	51 41 18	3078	50 12 42	3073	48 43 59	3067
	α Aquilæ	E.	71 47 34	3514	70 27 25	3517	69 7 20	3521	67 47 19	3526
	SUN	E.	118 11 39	3445	116 50 13	3438	115 28 40	3432	114 7 0	3425
11	MARS	W.	96 51 0	2942	98 22 25	2935	99 53 58	2927	101 25 42	2919
	Regulus	W.	94 59 14	3013	96 29 11	3005	97 59 18	2996	99 29 37	2986
	Spica	W.	41 4 42	2993	42 35 4	2984	44 5 36	2975	45 36 20	2965
	JUPITER	E.	35 56 41	3065	34 27 49	3058	32 58 48	3051	31 29 38	3044
	SATURN	E.	41 18 35	3035	39 49 6	3027	38 19 27	3019	36 49 39	3011
	α Aquilæ	E.	61 8 45	3558	59 49 25	3567	58 30 15	3577	57 11 16	3589
	SUN	E.	107 16 31	3384	105 53 56	3374	104 31 10	3364	103 8 12	3353
12	MARS	W.	109 7 6	2873	110 39 59	2863	112 13 5	2853	113 46 24	2843
	Regulus	W.	107 4 13	2934	108 35 49	2922	110 7 39	2910	111 39 45	2898
	Spica	W.	53 13 9	2912	54 45 13	2900	56 17 32	2887	57 50 7	2875
	JUPITER	E.	24 1 37	3009	22 31 35	3004	21 1 26	3000	19 31 12	2997
	SATURN	E.	29 18 1	2969	27 47 10	2961	26 16 8	2952	24 44 55	2942
	α Aquilæ	E.	50 40 5	3674	49 22 50	3698	48 6 1	3725	46 49 40	3755
	SUN	E.	96 10 12	3294	94 45 54	3281	93 21 20	3267	91 56 30	3253
13	Regulus	W.	119 24 17	2831	120 58 4	2817	122 32 9	2803	124 6 33	2788
	Spica	W.	65 37 19	2805	67 11 41	2790	68 46 22	2774	70 21 24	2758
	SUN	E.	84 48 3	3177	83 21 26	3161	81 54 30	3143	80 27 13	3126
14	Spica	W.	78 21 56	2675	79 59 10	2657	81 36 47	2639	83 14 49	2621
	Antares	W.	33 17 16	2744	34 52 57	2722	36 29 7	2699	38 5 48	2677
	SUN	E.	73 5 28	3036	71 36 0	3017	70 6 9	2998	68 35 54	2979
15	Spica	W.	91 31 10	2529	93 11 43	2510	94 52 42	2491	96 34 7	2472
	Antares	W.	46 16 34	2570	47 56 11	2549	49 36 16	2528	51 16 50	2507
	SUN	E.	60 58 33	2880	59 25 49	2861	57 52 41	2841	56 19 6	2821
16	Spica	W.	105 7 54	2379	106 51 59	2360	108 36 31	2342	110 21 30	2324
	Antares	W.	59 46 48	2408	61 30 12	2388	63 14 4	2369	64 58 24	2350
	JUPITER	W.	27 46 53	2452	29 29 14	2430	31 12 7	2408	32 55 30	2387
	SUN	E.	48 24 48	2723	46 48 39	2705	45 12 6	2687	43 35 8	2669
17	Antares	W.	73 46 46	2260	75 33 45	2243	77 21 8	2227	79 8 56	2210
	JUPITER	W.	41 39 42	2291	43 25 55	2273	45 12 34	2256	46 59 39	2239
	SATURN	W.	36 41 24	2275	38 28 0	2257	40 15 3	2239	42 2 32	2223

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
17	SUN	E.	41 57 46	2650	40 19 59	2634	38 41 50	2617	37 3 18	2600
18	Antares	W.	80 57 8	2195	82 45 43	2180	84 34 41	2166	86 24 0	2152
	JUPITER	W.	48 47 8	2223	50 35 1	2207	52 23 18	2192	54 11 58	2178
	SATURN	W.	43 50 26	2206	45 38 45	2190	47 27 27	2175	49 16 32	2160
	SUN	E.	28 45 28	2534	27 5 2	2525	25 24 23	2517	23 43 33	2512
22	SUN	W.	27 50 10	2372	29 34 25	2376	31 18 35	2380	33 2 39	2385
	Pollux	E.	82 43 1	2109	80 52 15	2117	79 1 42	2126	77 11 22	2136
	MARS	E.	114 56 18	2041	113 3 47	2046	111 11 25	2053	109 19 14	2061
23	SUN	W.	41 40 34	2428	43 23 29	2438	45 6 9	2450	46 48 33	2462
	Pollux	E.	68 3 50	2196	66 15 17	2212	64 27 7	2227	62 39 19	2243
	MARS	E.	100 1 32	2109	98 10 46	2120	96 20 18	2132	94 30 8	2145
24	SUN	W.	55 15 57	2531	56 56 27	2547	58 36 35	2562	60 16 22	2577
	Pollux	E.	53 46 38	2335	52 1 30	2357	50 16 53	2379	48 32 48	2402
	MARS	E.	85 24 21	2215	83 36 16	2231	81 48 35	2246	80 1 16	2262
	Regulus	E.	90 2 14	2227	88 14 26	2242	86 27 1	2257	84 39 59	2272
25	SUN	W.	68 29 49	2660	70 7 23	2677	71 44 34	2693	73 21 23	2710
	MARS	E.	71 10 44	2347	69 25 53	2364	67 41 27	2382	65 57 26	2400
	Regulus	E.	75 50 28	2352	74 5 44	2368	72 21 24	2384	70 37 27	2401
26	SUN	W.	81 19 48	2796	82 54 21	2813	84 28 32	2829	86 2 22	2846
	MARS	E.	57 23 50	2492	55 42 26	2511	54 1 28	2530	52 20 57	2551
	Regulus	E.	62 3 40	2485	60 22 6	2502	58 40 55	2518	57 0 7	2535
27	SUN	W.	93 46 10	2928	95 17 54	2944	96 49 17	2959	98 20 21	2975
	Aldebaran	W.	31 26 50	2622	33 5 15	2633	34 43 25	2644	36 21 20	2656
	MARS	E.	44 5 15	2652	42 27 31	2674	40 50 16	2697	39 13 31	2720
	Regulus	E.	48 41 57	2619	47 3 28	2636	45 25 22	2653	43 47 39	2669
	Spica	E.	102 23 14	2583	100 43 55	2597	99 4 56	2611	97 26 16	2626
28	SUN	W.	105 50 56	3048	107 20 9	3063	108 49 4	3076	110 17 43	3090
	Aldebaran	W.	44 26 55	2716	46 3 14	2727	47 39 17	2738	49 15 6	2750
	Regulus	E.	35 44 45	2756	34 9 20	2775	32 34 20	2795	30 59 45	2814
	Spica	E.	89 17 40	2693	87 40 51	2707	86 4 20	2719	84 28 5	2732
29	SUN	W.	117 36 55	3153	119 4 0	3165	120 30 50	3177	121 57 27	3188
	Aldebaran	W.	57 10 25	2805	58 44 46	2815	60 18 54	2825	61 52 49	2835
	Spica	E.	76 30 49	2789	74 56 7	2801	73 21 40	2811	71 47 26	2821
30	Aldebaran	W.	69 39 19	2881	71 12 2	2890	72 44 34	2898	74 16 55	2906
	Pollux	W.	29 0 31	3219	30 26 18	3198	31 52 29	3180	33 19 2	3165
	Spica	E.	63 59 31	2869	62 26 32	2878	60 53 45	2886	59 21 8	2894
	Antares	E.	109 24 12	2894	107 51 45	2902	106 19 29	2910	104 47 23	2918
31	Aldebaran	W.	81 56 12	2943	83 27 36	2950	84 58 51	2957	86 29 58	2964
	Pollux	W.	40 35 19	3124	42 3 0	3119	43 30 46	3116	44 58 36	3114
	Spica	E.	51 40 38	2933	50 9 0	2940	48 37 32	2946	47 6 11	2953
	Antares	E.	97 9 21	2955	95 38 12	2962	94 7 12	2968	92 36 20	2974

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
17	SUN	E.	35 24 23	2585	33 45 8	2571	32 5 33	2557	30 25 39	2545
18	Antares	W.	88 13 40	2139	90 3 40	2126	91 54 0	2114	93 44 38	2103
	JUPITER	W.	56 0 59	2165	57 50 20	2151	59 40 2	2138	61 30 3	2124
	SATURN	W.	51 5 59	2147	52 55 47	2133	54 45 56	2120	56 36 24	2108
	SUN	E.	22 2 36	2510	20 21 36	2512	18 40 39	2520	16 59 54	2535
22	SUN	W.	34 46 36	2391	36 30 24	2399	38 14 0	2408	39 57 24	2418
	Pollux	E.	75 21 17	2146	73 31 28	2158	71 41 57	2170	69 52 44	2182
	MARS	E.	107 27 14	2069	105 35 27	2078	103 43 54	2087	101 52 35	2098
23	SUN	W.	48 30 39	2475	50 12 27	2489	51 53 56	2502	53 35 6	2516
	Pollux	E.	60 51 54	2260	59 4 55	2278	57 18 22	2296	55 32 16	2315
	MARS	E.	92 40 17	2159	90 50 47	2172	89 1 37	2186	87 12 48	2200
24	SUN	W.	61 55 48	2593	63 34 52	2610	65 13 33	2626	66 51 52	2643
	Pollux	E.	46 49 16	2426	45 6 19	2453	43 23 59	2480	41 42 17	2507
	MARS	E.	78 14 21	2279	76 27 50	2296	74 41 44	2312	72 56 1	2329
	Regulus	E.	82 53 19	2288	81 7 2	2303	79 21 7	2319	77 35 36	2335
25	SUN	W.	74 57 50	2728	76 33 53	2744	78 9 34	2762	79 44 52	2779
	MARS	E.	64 13 51	2418	62 30 42	2436	60 47 58	2455	59 5 41	2473
	Regulus	E.	68 53 54	2418	67 10 45	2435	65 28 0	2451	63 45 38	2468
26	SUN	W.	87 35 50	2863	89 8 56	2880	90 41 41	2895	92 14 6	2912
	MARS	E.	50 40 54	2570	49 1 18	2590	47 22 9	2610	45 43 28	2631
	Regulus	E.	55 19 43	2552	53 39 42	2569	52 0 4	2585	50 20 49	2602
27	SUN	W.	99 51 5	2990	101 21 30	3005	102 51 37	3019	104 21 26	3034
	Aldebaran	W.	37 59 0	2668	39 36 23	2680	41 13 29	2692	42 50 20	2704
	MARS	E.	37 37 18	2744	36 1 37	2769	34 26 29	2796	32 51 55	2824
	Regulus	E.	42 10 18	2687	40 33 20	2704	38 56 45	2721	37 20 33	2739
	Spica	E.	95 47 56	2640	94 9 55	2653	92 32 12	2666	90 54 47	2680
28	SUN	W.	111 46 5	3103	113 14 11	3116	114 42 1	3129	116 9 36	3142
	Aldebaran	W.	50 50 39	2762	52 25 57	2773	54 1 0	2784	55 35 49	2794
	Regulus	E.	29 25 35	2835	27 51 53	2858	26 18 40	2881	24 45 56	2905
	Spica	E.	82 52 7	2744	81 16 25	2755	79 40 58	2766	78 5 46	2778
29	SUN	W.	123 23 50	3200	124 49 59	3212	126 15 54	3222	127 41 37	3230
	Aldebaran	W.	63 26 32	2845	65 0 2	2854	66 33 19	2863	68 6 25	2872
	Spica	E.	70 13 26	2831	68 39 39	2841	67 6 4	2850	65 32 41	2860
30	Aldebaran	W.	75 49 6	2914	77 21 7	2922	78 52 58	2929	80 24 40	2937
	Pollux	W.	34 45 53	3153	36 12 59	3143	37 40 17	3135	39 7 44	3129
	Spica	E.	57 48 42	2903	56 16 27	2910	54 44 21	2918	53 12 25	2925
	Antares	E.	103 15 27	2927	101 43 42	2934	100 12 6	2941	98 40 39	2945
31	Aldebaran	W.	88 0 56	2970	89 31 46	2976	91 2 28	2982	92 33 3	2987
	Pollux	W.	46 26 29	3112	47 54 24	3111	49 22 20	3110	50 50 17	3110
	Spica	E.	45 34 59	2959	44 3 55	2965	42 32 58	2971	41 2 9	2977
	Antares	E.	91 5 35	2981	89 34 59	2987	88 4 31	2993	86 34 10	2999

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to		Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Subtracted from Apparent Time.				
Mon.	1	h m s	s	° ' "	"	' "	s	m s	s		
Tues.	2	0 40 43.32	9.095	N. 4 23 3.8	+57.90	16 1.09	64.42	4 6.72	0.759		
Wed.	3	0 44 21.64	9.099	4 46 11.1	57.70	16 0.82	64.44	3 48.54	0.755		
		0 48 0.08	9.104	5 9 13.3	57.48	16 0.54	64.46	3 30.47	0.750		
Thur.	4	0 51 38.65	9.111	5 32 10.1	+57.24	16 0.27	64.48	3 12.53	0.744		
Frid.	5	0 55 17.37	9.118	5 55 1.0	57.00	15 59.99	64.50	2 54.76	0.737		
Sat.	6	0 58 56.28	9.126	6 17 45.9	56.74	15 59.72	64.53	2 37.15	0.729		
SUN.	7	1 2 35.39	9.135	6 40 24.4	+56.46	15 59.44	64.56	2 19.75	0.720		
Mon.	8	1 6 14.72	9.145	7 2 56.0	56.17	15 59.17	64.59	2 2.58	0.711		
Tues.	9	1 9 54.29	9.155	7 25 20.6	55.87	15 58.89	64.63	1 45.64	0.700		
Wed.	10	1 13 34.13	9.166	7 47 37.8	+55.55	15 58.62	64.67	1 28.97	0.689		
Thur.	11	1 17 14.24	9.178	8 9 47.2	55.22	15 58.35	64.71	1 12.57	0.677		
Frid.	12	1 20 54.66	9.191	8 31 48.5	54.88	15 58.08	64.75	0 56.48	0.664		
Sat.	13	1 24 35.40	9.205	8 53 41.3	+54.52	15 57.81	64.80	0 40.70	0.650		
SUN.	14	1 28 16.48	9.219	9 15 25.4	54.15	15 57.54	64.85	0 25.26	0.636		
Mon.	15	1 31 57.90	9.234	9 37 0.4	53.76	15 57.27	64.90	0 10.16	0.621		
Tues.	16	1 35 39.66	9.249	9 58 25.8	+53.36	15 57.01	64.95	0 4.56	0.606		
Wed.	17	1 39 21.82	9.265	10 19 41.4	52.94	15 56.74	65.00	0 18.90	0.591		
Thur.	18	1 43 4.35	9.281	10 40 46.9	52.50	15 56.48	65.06	0 32.89	0.575		
Frid.	19	1 46 47.28	9.298	11 1 41.7	+52.06	15 56.22	65.12	0 46.48	0.558		
Sat.	20	1 50 30.61	9.315	11 22 25.8	51.60	15 55.96	65.18	0 59.66	0.541		
SUN.	21	1 54 14.36	9.332	11 42 58.5	51.13	15 55.70	65.24	1 12.43	0.524		
Mon.	22	1 57 58.53	9.350	12 3 19.6	+50.64	15 55.44	65.30	1 24.79	0.506		
Tues.	23	2 1 43.13	9.368	12 23 28.8	50.13	15 55.18	65.36	1 36.71	0.488		
Wed.	24	2 5 28.17	9.386	12 43 25.7	49.61	15 54.93	65.43	1 48.20	0.470		
Thur.	25	2 9 13.64	9.405	13 3 10.1	+49.08	15 54.68	65.50	1 59.24	0.451		
Frid.	26	2 12 59.60	9.424	13 22 41.5	48.54	15 54.43	65.57	2 9.82	0.431		
Sat.	27	2 16 46.01	9.444	13 41 59.7	47.98	15 54.18	65.64	2 19.92	0.411		
SUN.	28	2 20 32.92	9.465	14 1 4.4	+47.41	15 53.93	65.72	2 29.53	0.391		
Mon.	29	2 24 20.32	9.486	14 19 55.2	46.83	15 53.69	65.79	2 38.67	0.370		
Tues.	30	2 28 8.23	9.507	14 38 31.9	46.23	15 53.45	65.87	2 47.29	0.349		
Wed.	31	2 31 56.65	9.529	N. 14 56 54.1	+45.62	15 53.21	65.95	2 55.40	0.327		

NOTE.—The mean time of semidiameter passing may be found by subtracting 0.18 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Subtracted from	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ' "	"	m s	s	h m s
Mon.	1	0 40 42.70	+ 9.097	N. 4 22 59.8	+ 57.96	4 6.77	+ 0.759	0 36 35.94
Tues.	2	0 44 21.08	9.101	4 46 7.4	57.77	3 48.59	0.755	0 40 32.49
Wed.	3	0 47 59.55	9.106	5 9 9.9	57.57	3 30.51	0.750	0 44 29.04
Thur.	4	0 51 38.16	+ 9.112	5 32 7.0	+ 57.32	3 12.57	+ 0.744	0 48 25.60
Frid.	5	0 55 16.93	9.119	5 54 58.2	57.04	2 54.79	0.737	0 52 22.15
Sat.	6	0 58 55.88	9.127	6 17 43.4	56.76	2 37.18	0.729	0 56 18.70
SUN.	7	1 2 35.04	+ 9.136	6 40 22.2	+ 56.47	2 19.78	+ 0.720	1 0 15.25
Mon.	8	1 6 14.41	9.146	7 2 54.1	56.18	2 2.60	0.711	1 4 11.80
Tues.	9	1 9 54.02	9.156	7 25 19.0	55.88	1 45.66	0.700	1 8 8.36
Wed.	10	1 13 33.90	+ 9.167	7 47 36.4	+ 55.56	1 28.99	+ 0.689	1 12 4.91
Thur.	11	1 17 14.05	9.179	8 9 46.1	55.23	1 12.59	0.677	1 16 1.46
Frid.	12	1 20 54.51	9.192	8 31 47.6	54.89	0 56.49	0.664	1 19 58.02
Sat.	13	1 24 35.28	+ 9.206	8 53 40.7	+ 54.53	0 40.71	+ 0.650	1 23 54.57
SUN.	14	1 28 16.39	9.220	9 15 25.0	54.16	0 25.27	0.636	1 27 51.12
Mon.	15	1 31 57.85	9.235	9 37 0.2	53.77	0 10.17	0.621	1 31 47.68
Tues.	16	1 35 39.66	+ 9.250	9 58 25.9	+ 53.37	0 4.57	+ 0.606	1 35 44.23
Wed.	17	1 39 21.86	9.266	10 19 41.7	52.95	0 18.91	0.591	1 39 40.78
Thur.	18	1 43 4.43	9.282	10 40 47.4	52.51	0 32.90	0.575	1 43 37.33
Frid.	19	1 46 47.40	+ 9.299	11 1 42.4	+ 52.06	0 46.49	+ 0.558	1 47 33.89
Sat.	20	1 50 30.77	9.316	11 22 26.6	51.60	0 59.67	0.541	1 51 30.44
SUN.	21	1 54 14.55	9.333	11 42 59.5	51.13	1 12.44	0.524	1 55 26.99
Mon.	22	1 57 58.75	+ 9.351	12 3 20.8	+ 50.64	1 24.80	+ 0.506	1 59 23.55
Tues.	23	2 1 43.38	9.369	12 23 30.2	50.13	1 36.72	0.488	2 3 20.10
Wed.	24	2 5 28.45	9.387	12 43 27.2	49.61	1 48.21	0.470	2 7 16.66
Thur.	25	2 9 13.95	+ 9.406	13 3 11.7	+ 49.08	1 59.26	+ 0.451	2 11 13.21
Frid.	26	2 12 59.94	9.425	13 22 43.3	48.54	2 9.84	0.431	2 15 9.76
Sat.	27	2 16 46.38	9.445	13 42 1.6	47.98	2 19.94	0.411	2 19 6.32
SUN.	28	2 20 33.32	+ 9.466	14 1 6.4	+ 47.41	2 29.55	+ 0.391	2 23 2.87
Mon.	29	2 24 20.74	9.487	14 19 57.3	46.83	2 38.69	0.370	2 26 59.42
Tues.	30	2 28 8.67	9.508	14 38 34.0	46.23	2 47.31	0.349	2 30 55.98
Wed.	31	2 31 57.11	+ 9.530	N. 14 56 56.3	+ 45.62	2 55.42	+ 0.327	2 34 52.53

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
 The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

Diff. for 1 Hour,
 + 0°.8565.
 (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S						Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.	
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.						
		λ	λ'								
		°	'			"	"				
1	91	11	4	41.6	4	15.1	147.86	— 0.27	9.9998577	+51.7	h m s 23 19 34.15
2	92	12	3	49.2	3	22.7	147.77	0.20	9.9999820	51.9	23 15 38.24
3	93	13	2	54.7	2	28.1	147.69	0.13	0.0001066	52.0	23 11 42.34
4	94	14	1	58.2	1	31.5	147.60	— 0.03	0.0002317	+52.2	23 7 46.43
5	95	15	0	59.7	0	32.9	147.52	+ 0.08	0.0003572	52.3	23 3 50.52
6	96	15	59	59.1	59	32.2	147.44	0.21	0.0004830	52.5	22 59 54.62
7	97	16	58	56.7	58	29.7	147.36	+ 0.34	0.0006090	+52.6	22 55 58.71
8	98	17	57	52.4	57	25.3	147.28	0.46	0.0007353	52.6	22 52 2.80
9	99	18	56	46.3	56	19.1	147.21	0.59	0.0008616	52.6	22 48 6.90
10	100	19	55	38.4	55	11.1	147.13	+ 0.70	0.0009879	+52.6	22 44 10.99
11	101	20	54	28.7	54	1.4	147.06	0.80	0.0011140	52.5	22 40 15.08
12	102	21	53	17.3	52	49.9	146.99	0.84	0.0012398	52.3	22 36 19.18
13	103	22	52	4.3	51	36.7	146.92	+ 0.88	0.0013651	+52.1	22 32 23.27
14	104	23	50	49.5	50	21.9	146.85	0.90	0.0014898	51.8	22 28 27.36
15	105	24	49	33.1	49	5.3	146.78	0.87	0.0016136	51.4	22 24 31.45
16	106	25	48	14.9	47	47.0	146.71	+ 0.81	0.0017364	+50.9	22 20 35.55
17	107	26	46	54.9	46	27.0	146.63	0.72	0.0018581	50.4	22 16 39.64
18	108	27	45	33.1	45	5.1	146.55	0.62	0.0019786	49.9	22 12 43.73
19	109	28	44	9.4	43	41.3	146.47	+ 0.49	0.0020977	+49.3	22 8 47.83
20	110	29	42	43.8	42	15.5	146.39	0.34	0.0022154	48.7	22 4 51.92
21	111	30	41	16.0	40	47.7	146.30	0.21	0.0023318	48.2	22 0 56.01
22	112	31	39	46.2	39	17.7	146.21	+ 0.08	0.0024469	+47.7	21 57 0.10
23	113	32	38	14.3	37	45.7	146.12	— 0.03	0.0025608	47.2	21 53 4.20
24	114	33	36	40.2	36	11.5	146.03	0.13	0.0026737	46.8	21 49 8.29
25	115	34	35	3.9	34	35.1	145.95	— 0.20	0.0027855	+46.4	21 45 12.38
26	116	35	33	25.6	32	56.7	145.86	0.23	0.0028964	46.1	21 41 16.47
27	117	36	31	45.2	31	16.2	145.77	0.25	0.0030066	45.8	21 37 20.56
28	118	37	30	2.7	29	33.6	145.68	— 0.22	0.0031160	+45.5	21 33 24.66
29	119	38	28	18.2	27	48.9	145.60	0.18	0.0032248	45.2	21 29 28.75
30	120	39	26	31.7	26	2.3	145.52	— 0.10	0.0033329	44.9	21 25 32.84
31	121	40	24	43.3	24	13.8	145.44	0.00	0.0034404	+44.7	21 21 36.93

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0^d.0 of the Besselian fictitious year.

Diff. for 1 Hour,
—9^s.8296.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	["]	[°] ['] ["]	["]	^h ^m ^s	^m ^s	^d
1	14 54.2	14 51.7	54 34.9	- 0.81	54 25.9	- 0.70	10 31.2	+ 1.76	12.0
2	14 49.6	14 47.9	54 18.2	0.59	54 11.7	0.49	11 13.4	1.76	13.0
3	14 46.4	14 45.4	54 6.5	0.38	54 2.6	0.28	11 55.7	1.78	14.0
4	14 44.6	14 44.3	53 59.9	- 0.18	53 58.5	- 0.06	12 38.9	+ 1.82	15.0
5	14 44.2	14 44.6	53 58.4	+ 0.05	53 59.7	+ 0.17	13 23.2	1.88	16.0
6	14 45.3	14 46.5	54 2.5	0.30	54 6.9	0.43	14 9.0	1.94	17.0
7	14 48.2	14 50.3	54 12.8	+ 0.57	54 20.6	+ 0.72	14 56.3	+ 2.00	18.0
8	14 52.9	14 56.0	54 30.1	0.88	54 41.6	1.04	15 45.1	2.06	19.0
9	14 59.6	15 3.9	54 55.0	1.20	55 10.5	1.37	16 35.0	2.09	20.0
10	15 8.6	15 14.0	55 28.0	+ 1.54	55 47.6	+ 1.71	17 25.6	+ 2.11	21.0
11	15 19.8	15 26.2	56 9.1	1.87	56 32.4	2.01	18 16.3	2.12	22.0
12	15 33.0	15 40.2	56 57.4	2.14	57 23.9	2.24	19 7.2	2.12	23.0
13	15 47.6	15 55.3	57 51.3	+ 2.32	58 19.5	+ 2.35	19 58.2	+ 2.13	24.0
14	16 3.0	16 10.6	58 47.8	2.34	59 15.7	2.28	20 49.7	2.16	25.0
15	16 17.9	16 24.8	59 42.5	2.16	60 7.5	1.98	21 42.2	2.22	26.0
16	16 30.9	16 36.2	60 30.1	+ 1.75	60 49.5	+ 1.45	22 36.4	+ 2.30	27.0
17	16 40.4	16 43.4	61 5.0	1.11	61 16.2	+ 0.73	23 32.7	2.40	28.0
18	16 45.2	16 45.5	61 22.5	+ 0.32	61 23.8	- 0.11	δ		29.0
19	16 44.4	16 42.1	61 19.9	- 0.53	61 11.2	- 0.93	0 31.4	+ 2.49	0.6
20	16 38.4	16 33.6	60 57.8	1.29	60 40.2	1.61	1 32.0	2.54	1.6
21	16 27.9	16 21.4	60 19.1	1.88	59 55.1	2.09	2 33.2	2.53	2.6
22	16 14.2	16 6.7	59 28.9	- 2.24	59 1.4	- 2.35	3 33.4	+ 2.46	3.6
23	15 59.0	15 51.3	58 33.0	2.37	58 4.6	2.35	4 31.0	2.33	4.6
24	15 43.6	15 36.2	57 36.5	2.30	57 9.4	2.21	5 25.0	2.18	5.6
25	15 29.2	15 22.5	56 43.5	- 2.09	56 19.1	- 1.95	6 15.5	+ 2.03	6.6
26	15 16.4	15 10.8	55 56.5	1.80	55 35.9	1.63	7 2.6	1.91	7.6
27	15 5.7	15 1.2	55 17.3	1.46	55 0.8	1.29	7 47.3	1.82	8.6
28	14 57.3	14 53.9	54 46.3	- 1.12	54 34.0	- 0.95	8 30.2	+ 1.77	9.6
29	14 51.1	14 48.8	54 23.6	0.79	54 15.0	0.63	9 12.3	1.75	10.6
30	14 47.0	14 45.6	54 8.4	0.48	54 3.5	0.34	9 54.4	1.76	11.6
31	14 44.7	14 44.2	54 0.2	- 0.21	53 58.4	- 0.08	10 37.1	+ 1.80	12.6

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 1.					WEDNESDAY 3.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	10 49 47.09	1.8864	N. 2 12 34.9	10.659	0	12 19 43.63	1.8775	S. 6 11 40.6	10.098
1	10 51 40.24	1.8853	2 1 55.2	10.663	1	12 21 36.30	1.8783	6 21 45.7	10.072
2	10 53 33.32	1.8841	1 51 15.3	10.667	2	12 23 29.03	1.8793	6 31 49.2	10.044
3	10 55 26.33	1.8829	1 40 35.2	10.670	3	12 25 21.81	1.8801	6 41 51.0	10.015
4	10 57 19.27	1.8818	1 29 54.9	10.672	4	12 27 14.64	1.8810	6 51 51.0	9.986
5	10 59 12.15	1.8808	1 19 14.6	10.672	5	12 29 7.53	1.8820	7 1 49.3	9.956
6	11 1 4.97	1.8798	1 8 34.3	10.672	6	12 31 0.48	1.8830	7 11 45.7	9.924
7	11 2 57.73	1.8788	0 57 53.9	10.673	7	12 32 53.49	1.8840	7 21 40.2	9.893
8	11 4 50.43	1.8779	0 47 13.5	10.673	8	12 34 46.56	1.8851	7 31 32.9	9.862
9	11 6 43.08	1.8771	0 36 33.2	10.670	9	12 36 39.70	1.8862	7 41 23.6	9.829
10	11 8 35.68	1.8763	0 25 53.1	10.667	10	12 38 32.90	1.8873	7 51 12.4	9.796
11	11 10 28.24	1.8756	0 15 13.1	10.666	11	12 40 26.18	1.8885	8 0 59.1	9.761
12	11 12 20.75	1.8748	N. 0 4 33.2	10.663	12	12 42 19.52	1.8897	8 10 43.7	9.727
13	11 14 13.22	1.8742	S. 0 6 6.4	10.658	13	12 44 12.94	1.8910	8 20 26.3	9.692
14	11 16 5.65	1.8735	0 16 45.7	10.653	14	12 46 6.44	1.8923	8 30 6.7	9.656
15	11 17 58.04	1.8729	0 27 24.7	10.647	15	12 48 0.02	1.8936	8 39 45.0	9.620
16	11 19 50.40	1.8724	0 38 3.3	10.641	16	12 49 53.67	1.8948	8 49 21.1	9.582
17	11 21 42.73	1.8719	0 48 41.6	10.634	17	12 51 47.40	1.8962	8 58 54.9	9.545
18	11 23 35.03	1.8714	0 59 19.4	10.627	18	12 53 41.22	1.8977	9 8 26.5	9.507
19	11 25 27.30	1.8711	1 9 56.8	10.619	19	12 55 35.13	1.8992	9 17 55.7	9.467
20	11 27 19.56	1.8708	1 20 33.7	10.610	20	12 57 29.12	1.9006	9 27 22.6	9.428
21	11 29 11.79	1.8703	1 31 10.0	10.601	21	12 59 23.20	1.9021	9 36 47.1	9.388
22	11 31 4.00	1.8701	1 41 45.8	10.591	22	13 1 17.37	1.9036	9 46 9.2	9.347
23	11 32 56.20	1.8699	S. 1 52 20.9	10.579	23	13 3 11.63	1.9052	S. 9 55 28.8	9.306
TUESDAY 2.					THURSDAY 4.				
0	11 34 48.39	1.8698	S. 2 2 55.3	10.567	0	13 5 5.99	1.9068	S. 10 4 45.9	9.264
1	11 36 40.57	1.8696	2 13 29.0	10.556	1	13 7 0.45	1.9084	10 14 0.5	9.222
2	11 38 32.74	1.8694	2 24 2.0	10.543	2	13 8 55.00	1.9100	10 23 12.5	9.178
3	11 40 24.90	1.8693	2 34 34.2	10.530	3	13 10 49.65	1.9118	10 32 21.8	9.133
4	11 42 17.06	1.8693	2 45 5.6	10.516	4	13 12 44.41	1.9135	10 41 28.5	9.089
5	11 44 9.22	1.8694	2 55 36.1	10.501	5	13 14 39.27	1.9152	10 50 32.5	9.043
6	11 46 1.39	1.8695	3 6 5.7	10.486	6	13 16 34.23	1.9169	10 59 33.7	8.997
7	11 47 53.56	1.8696	3 16 34.4	10.470	7	13 18 29.30	1.9187	11 8 32.2	8.952
8	11 49 45.74	1.8698	3 27 2.1	10.453	8	13 20 24.47	1.9205	11 17 27.9	8.905
9	11 51 37.93	1.8699	3 37 28.8	10.436	9	13 22 19.76	1.9223	11 26 20.8	8.857
10	11 53 30.13	1.8702	3 47 54.4	10.417	10	13 24 15.15	1.9242	11 35 10.8	8.808
11	11 55 22.35	1.8705	3 58 18.9	10.399	11	13 26 10.66	1.9261	11 43 57.8	8.759
12	11 57 14.59	1.8708	4 8 42.3	10.380	12	13 28 6.28	1.9280	11 52 41.9	8.710
13	11 59 6.84	1.8711	4 19 4.5	10.360	13	13 30 2.02	1.9300	12 1 23.0	8.660
14	12 0 59.12	1.8715	4 29 25.5	10.340	14	13 31 57.88	1.9319	12 10 1.1	8.609
15	12 2 51.42	1.8719	4 39 45.3	10.319	15	13 33 53.85	1.9338	12 18 36.1	8.557
16	12 4 43.75	1.8724	4 50 3.8	10.297	16	13 35 49.94	1.9359	12 27 8.0	8.505
17	12 6 36.11	1.8729	5 0 20.9	10.274	17	13 37 46.16	1.9380	12 35 36.7	8.452
18	12 8 28.50	1.8734	5 10 36.7	10.252	18	13 39 42.50	1.9400	12 44 2.3	8.400
19	12 10 20.92	1.8740	5 20 51.1	10.228	19	13 41 38.96	1.9421	12 52 24.7	8.346
20	12 12 13.38	1.8747	5 31 4.1	10.204	20	13 43 35.55	1.9443	13 0 43.8	8.292
21	12 14 5.88	1.8753	5 41 15.6	10.178	21	13 45 32.27	1.9463	13 8 59.7	8.237
22	12 15 58.42	1.8760	5 51 25.5	10.152	22	13 47 29.11	1.9484	13 17 12.2	8.180
23	12 17 51.00	1.8768	6 1 33.9	10.126	23	13 49 26.08	1.9506	13 25 21.3	8.123
24	12 19 43.63	1.8775	S. 6 11 40.6	10.098	24	13 51 23.18	1.9528	S. 13 33 27.0	8.067

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 5.					SUNDAY 7.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	13 51 23.18	1.9528	S. 13 33 27.0	8.067	0	15 27 52.10	2.0694	S. 18 43 50.7	4.649
1	13 53 20.41	1.9550	13 41 29.3	8.009	1	15 29 56.34	2.0718	18 48 27.1	4.565
2	13 55 17.78	1.9572	13 49 28.1	7.951	2	15 32 0.72	2.0743	18 52 58.5	4.480
3	13 57 15.28	1.9594	13 57 23.4	7.892	3	15 34 5.25	2.0768	18 57 24.7	4.393
4	13 59 12.91	1.9617	14 5 15.2	7.833	4	15 36 9.93	2.0792	19 1 45.7	4.307
5	14 1 10.68	1.9639	14 13 3.4	7.773	5	15 38 14.75	2.0816	19 6 1.6	4.222
6	14 3 8.58	1.9662	14 20 48.0	7.712	6	15 40 19.72	2.0840	19 10 12.4	4.136
7	14 5 6.62	1.9685	14 28 28.9	7.651	7	15 42 24.83	2.0863	19 14 17.9	4.048
8	14 7 4.80	1.9708	14 36 6.2	7.590	8	15 44 30.08	2.0887	19 18 18.1	3.959
9	14 9 3.12	1.9732	14 43 39.7	7.527	9	15 46 35.47	2.0910	19 22 13.0	3.871
10	14 11 1.58	1.9755	14 51 9.4	7.464	10	15 48 41.00	2.0933	19 26 2.6	3.782
11	14 13 0.18	1.9779	14 58 35.4	7.401	11	15 50 46.67	2.0957	19 29 46.9	3.694
12	14 14 58.93	1.9803	15 5 57.5	7.337	12	15 52 52.49	2.0981	19 33 25.9	3.605
13	14 16 57.82	1.9827	15 13 15.8	7.272	13	15 54 58.44	2.1003	19 36 59.5	3.514
14	14 18 56.85	1.9850	15 20 30.1	7.206	14	15 57 4.53	2.1027	19 40 27.6	3.423
15	14 20 56.02	1.9874	15 27 40.5	7.141	15	15 59 10.76	2.1049	19 43 50.3	3.332
16	14 22 55.34	1.9898	15 34 47.0	7.074	16	16 1 17.12	2.1072	19 47 7.5	3.242
17	14 24 54.80	1.9923	15 41 49.4	7.007	17	16 3 23.62	2.1094	19 50 19.3	3.150
18	14 26 54.41	1.9948	15 48 47.8	6.939	18	16 5 30.25	2.1116	19 53 25.5	3.057
19	14 28 54.17	1.9972	15 55 42.1	6.871	19	16 7 37.01	2.1138	19 56 26.2	2.965
20	14 30 54.07	1.9996	16 2 32.3	6.802	20	16 9 43.90	2.1159	19 59 21.3	2.872
21	14 32 54.12	2.0021	16 9 18.3	6.732	21	16 11 50.92	2.1181	20 2 10.9	2.779
22	14 34 54.32	2.0045	16 16 0.2	6.663	22	16 13 58.07	2.1203	20 4 54.8	2.685
23	14 36 54.66	2.0070	S. 16 22 37.9	6.592	23	16 16 5.35	2.1223	S. 20 7 33.1	2.592
SATURDAY 6.					MONDAY 8.				
0	14 38 55.16	2.0095	S. 16 29 11.3	6.521	0	16 18 12.75	2.1244	S. 20 10 5.8	2.498
1	14 40 55.80	2.0120	16 35 40.4	6.449	1	16 20 20.28	2.1265	20 12 32.8	2.403
2	14 42 56.60	2.0145	16 42 5.2	6.377	2	16 22 27.93	2.1286	20 14 54.1	2.308
3	14 44 57.54	2.0170	16 48 25.7	6.305	3	16 24 35.71	2.1307	20 17 9.7	2.212
4	14 46 58.64	2.0195	16 54 41.8	6.231	4	16 26 43.61	2.1326	20 19 19.5	2.115
5	14 48 59.88	2.0220	17 0 53.4	6.157	5	16 28 51.62	2.1346	20 21 23.5	2.019
6	14 51 1.28	2.0245	17 7 0.6	6.082	6	16 30 59.76	2.1366	20 23 21.8	1.923
7	14 53 2.82	2.0270	17 13 3.3	6.007	7	16 33 8.01	2.1385	20 25 14.3	1.826
8	14 55 4.52	2.0296	17 19 1.5	5.932	8	16 35 16.38	2.1404	20 27 0.9	1.728
9	14 57 6.37	2.0321	17 24 55.1	5.855	9	16 37 24.86	2.1423	20 28 41.7	1.631
10	14 59 8.37	2.0345	17 30 44.1	5.778	10	16 39 33.45	2.1442	20 30 16.6	1.533
11	15 1 10.51	2.0370	17 36 28.5	5.701	11	16 41 42.16	2.1461	20 31 45.6	1.434
12	15 3 12.81	2.0396	17 42 8.2	5.623	12	16 43 50.98	2.1479	20 33 8.7	1.336
13	15 5 15.26	2.0421	17 47 43.3	5.545	13	16 45 59.91	2.1497	20 34 25.9	1.237
14	15 7 17.86	2.0446	17 53 13.6	5.466	14	16 48 8.94	2.1514	20 35 37.1	1.137
15	15 9 20.61	2.0471	17 58 39.2	5.387	15	16 50 18.08	2.1532	20 36 42.4	1.038
16	15 11 23.51	2.0496	18 4 0.0	5.307	16	16 52 27.32	2.1548	20 37 41.7	0.939
17	15 13 26.56	2.0521	18 9 16.0	5.226	17	16 54 36.66	2.1566	20 38 35.1	0.839
18	15 15 29.76	2.0546	18 14 27.1	5.145	18	16 56 46.11	2.1583	20 39 22.4	0.738
19	15 17 33.11	2.0571	18 19 33.4	5.064	19	16 58 55.65	2.1598	20 40 3.7	0.638
20	15 19 36.61	2.0596	18 24 34.8	4.982	20	17 1 5.29	2.1615	20 40 39.0	0.537
21	15 21 40.26	2.0621	18 29 31.2	4.899	21	17 3 15.03	2.1631	20 41 8.2	0.436
22	15 23 44.06	2.0646	18 34 22.7	4.817	22	17 5 24.86	2.1646	20 41 31.3	0.335
23	15 25 48.01	2.0670	18 39 9.2	4.733	23	17 7 34.78	2.1661	20 41 48.4	0.234
24	15 27 52.10	2.0694	S. 18 43 50.7	4.649	24	17 9 44.79	2.1676	S. 20 41 59.4	0.132

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	
TUESDAY 9.							THURSDAY 11.							
	h	m	s	s	°	'		h	m	s	s	°	'	
0	17	9	44.79	2.1676	S. 20	41 59.4	0.132	0	18	54	59.55	2.2078	S. 18	48 57.9
1	17	11	54.89	2.1691	20	42 4.3	-0.031	1	18	57	12.02	2.2080	18	44 3.8
2	17	14	5.08	2.1706	20	42 3.1	+0.072	2	18	59	24.51	2.2083	18	39 3.6
3	17	16	15.36	2.1720	20	41 55.7	0.174	3	19	1	37.01	2.2085	18	33 57.3
4	17	18	25.72	2.1733	20	41 42.2	0.276	4	19	3	49.53	2.2087	18	28 44.8
5	17	20	36.16	2.1747	20	41 22.6	0.378	5	19	6	2.06	2.2089	18	23 26.2
6	17	22	46.68	2.1760	20	40 56.8	0.482	6	19	8	14.60	2.2091	18	18 1.5
7	17	24	57.28	2.1773	20	40 24.8	0.585	7	19	10	27.15	2.2093	18	12 30.7
8	17	27	7.96	2.1787	20	39 46.6	0.688	8	19	12	39.72	2.2095	18	6 53.9
9	17	29	18.72	2.1799	20	39 2.3	0.791	9	19	14	52.29	2.2096	18	1 11.0
10	17	31	29.55	2.1811	20	38 11.7	0.895	10	19	17	4.87	2.2098	17	55 22.0
11	17	33	40.45	2.1823	20	37 14.9	0.998	11	19	19	17.46	2.2100	17	49 27.0
12	17	35	51.42	2.1834	20	36 11.9	1.102	12	19	21	30.07	2.2102	17	43 26.0
13	17	38	2.46	2.1846	20	35 2.7	1.205	13	19	23	42.68	2.2102	17	37 19.0
14	17	40	13.57	2.1857	20	33 47.3	1.309	14	19	25	55.29	2.2103	17	31 6.0
15	17	42	24.74	2.1867	20	32 25.6	1.413	15	19	28	7.91	2.2103	17	24 47.1
16	17	44	35.97	2.1877	20	30 57.7	1.517	16	19	30	20.53	2.2104	17	18 22.2
17	17	46	47.26	2.1888	20	29 23.6	1.621	17	19	32	33.16	2.2106	17	11 51.4
18	17	48	58.62	2.1898	20	27 43.2	1.726	18	19	34	45.80	2.2107	17	5 14.7
19	17	51	10.04	2.1908	20	25 56.5	1.831	19	19	36	58.44	2.2108	16	58 32.1
20	17	53	21.51	2.1917	20	24 3.5	1.935	20	19	39	11.09	2.2108	16	51 43.7
21	17	55	33.04	2.1926	20	22 4.3	2.039	21	19	41	23.74	2.2109	16	44 49.5
22	17	57	44.62	2.1934	20	19 58.8	2.143	22	19	43	36.40	2.2110	16	37 49.4
23	17	59	56.25	2.1943	S. 20	17 47.1	2.247	23	19	45	49.06	2.2111	S. 16	30 43.5
WEDNESDAY 10.							FRIDAY 12.							
0	18	2	7.93	2.1951	S. 20	15 29.1	2.352	0	19	48	1.73	2.2112	S. 16	23 31.9
1	18	4	19.66	2.1959	20	13 4.8	2.457	1	19	50	14.40	2.2112	16	16 14.5
2	18	6	31.44	2.1967	20	10 34.2	2.562	2	19	52	27.07	2.2112	16	8 51.4
3	18	8	43.27	2.1975	20	7 57.4	2.666	3	19	54	39.74	2.2113	16	1 22.6
4	18	10	55.14	2.1982	20	5 14.3	2.771	4	19	56	52.42	2.2113	15	53 48.1
5	18	13	7.05	2.1988	20	2 24.9	2.876	5	19	59	5.10	2.2113	15	46 8.0
6	18	15	19.00	2.1995	19	59 29.2	2.981	6	20	1	17.78	2.2114	15	38 22.3
7	18	17	30.99	2.2002	19	56 27.2	3.085	7	20	3	30.47	2.2116	15	30 30.9
8	18	19	43.02	2.2008	19	53 19.0	3.189	8	20	5	43.17	2.2117	15	22 34.0
9	18	21	55.09	2.2014	19	50 4.5	3.294	9	20	7	55.87	2.2117	15	14 31.5
10	18	24	7.19	2.2020	19	46 43.7	3.398	10	20	10	8.57	2.2118	15	6 23.5
11	18	26	19.33	2.2025	19	43 16.7	3.502	11	20	12	21.28	2.2119	14	58 10.1
12	18	28	31.49	2.2030	19	39 43.4	3.607	12	20	14	34.00	2.2120	14	49 51.2
13	18	30	43.69	2.2035	19	36 3.9	3.711	13	20	16	46.72	2.2121	14	41 26.9
14	18	32	55.91	2.2040	19	32 18.1	3.815	14	20	18	59.45	2.2123	14	32 57.2
15	18	35	8.17	2.2045	19	28 26.1	3.919	15	20	21	12.19	2.2123	14	24 22.1
16	18	37	20.45	2.2049	19	24 27.8	4.023	16	20	23	24.93	2.2124	14	15 41.7
17	18	39	32.76	2.2053	19	20 23.3	4.126	17	20	25	37.68	2.2126	14	6 56.0
18	18	41	45.09	2.2058	19	16 12.6	4.231	18	20	27	50.44	2.2128	13	58 5.0
19	18	43	57.45	2.2062	19	11 55.6	4.334	19	20	30	3.21	2.2129	13	49 8.8
20	18	46	9.83	2.2065	19	7 32.5	4.437	20	20	32	15.99	2.2131	13	40 7.4
21	18	48	22.23	2.2068	19	3 3.1	4.541	21	20	34	28.78	2.2133	13	31 0.9
22	18	50	34.65	2.2072	18	58 27.6	4.644	22	20	36	41.59	2.2136	13	21 49.2
23	18	52	47.09	2.2075	18	53 45.8	4.747	23	20	38	54.41	2.2138	13	12 32.5
24	18	54	59.55	2.2078	S. 18	48 57.9	4.850	24	20	41	7.24	2.2140	S. 13	3 10.7

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 13.					MONDAY 15.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	20 41 7.24	2.2140	S. 13 3 10.7	9.405	0	22 28 7.52	2.2563	S. 4 9 38.0	12.479
1	20 43 20.09	2.2143	12 53 43.9	9.487	1	22 30 22.95	2.2581	3 57 8.1	12.518
2	20 45 32.95	2.2145	12 44 12.2	9.570	2	22 32 38.49	2.2599	3 44 35.8	12.557
3	20 47 45.83	2.2148	12 34 35.5	9.652	3	22 34 54.14	2.2618	3 32 1.3	12.593
4	20 49 58.73	2.2152	12 24 53.9	9.734	4	22 37 9.90	2.2636	3 19 24.6	12.629
5	20 52 11.65	2.2155	12 15 7.4	9.815	5	22 39 25.77	2.2654	3 6 45.8	12.664
6	20 54 24.59	2.2158	12 5 16.1	9.894	6	22 41 41.75	2.2673	2 54 4.9	12.697
7	20 56 37.55	2.2162	11 55 20.1	9.973	7	22 43 57.85	2.2693	2 41 22.1	12.729
8	20 58 50.53	2.2166	11 45 19.3	10.052	8	22 46 14.07	2.2713	2 28 37.4	12.759
9	21 1 3.54	2.2170	11 35 13.9	10.129	9	22 48 30.41	2.2734	2 15 51.0	12.788
10	21 3 16.57	2.2174	11 25 3.8	10.207	10	22 50 46.88	2.2755	2 3 2.8	12.817
11	21 5 29.63	2.2179	11 14 49.1	10.282	11	22 53 3.47	2.2777	1 50 13.0	12.843
12	21 7 42.72	2.2184	11 4 30.0	10.357	12	22 55 20.20	2.2799	1 37 21.6	12.869
13	21 9 55.84	2.2189	10 54 6.3	10.432	13	22 57 37.06	2.2821	1 24 28.7	12.893
14	21 12 8.99	2.2194	10 43 38.1	10.507	14	22 59 54.05	2.2843	1 11 34.5	12.915
15	21 14 22.17	2.2200	10 33 5.4	10.581	15	23 2 11.18	2.2867	0 58 38.9	12.937
16	21 16 35.39	2.2206	10 22 28.4	10.653	16	23 4 28.45	2.2890	0 45 42.1	12.956
17	21 18 48.64	2.2212	10 11 47.1	10.724	17	23 6 45.86	2.2913	0 32 44.2	12.974
18	21 21 1.93	2.2218	10 1 1.5	10.795	18	23 9 3.41	2.2938	0 19 45.2	12.992
19	21 23 15.26	2.2225	9 50 11.7	10.865	19	23 11 21.11	2.2963	S. 0 6 45.2	13.007
20	21 25 28.63	2.2232	9 39 17.7	10.934	20	23 13 38.97	2.2988	N. 0 6 15.6	13.020
21	21 27 42.04	2.2239	9 28 19.6	11.002	21	23 15 56.97	2.3013	0 19 17.2	13.033
22	21 29 55.50	2.2247	9 17 17.4	11.070	22	23 18 15.13	2.3039	0 32 19.6	13.045
23	21 32 9.00	2.2254	S. 9 6 11.2	11.137	23	23 20 33.44	2.3065	N. 0 45 22.6	13.054
SUNDAY 14.					TUESDAY 16.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	21 34 22.55	2.2263	S. 8 55 1.0	11.203	0	23 22 51.91	2.3092	N. 0 58 26.1	13.062
1	21 36 36.15	2.2272	8 43 46.9	11.267	1	23 25 10.54	2.3119	1 11 30.1	13.069
2	21 38 49.81	2.2281	8 32 29.0	11.330	2	23 27 29.34	2.3147	1 24 34.4	13.074
3	21 41 3.52	2.2289	8 21 7.3	11.393	3	23 29 48.30	2.3175	1 37 39.0	13.077
4	21 43 17.28	2.2298	8 9 41.8	11.456	4	23 32 7.44	2.3203	1 50 43.7	13.079
5	21 45 31.10	2.2308	7 58 12.6	11.517	5	23 34 26.74	2.3232	2 3 48.5	13.080
6	21 47 44.98	2.2318	7 46 39.8	11.577	6	23 36 46.22	2.3261	2 16 53.3	13.079
7	21 49 58.92	2.2329	7 35 3.4	11.636	7	23 39 5.87	2.3290	2 29 58.0	13.077
8	21 52 12.93	2.2340	7 23 23.5	11.694	8	23 41 25.70	2.3319	2 43 2.5	13.073
9	21 54 27.00	2.2351	7 11 40.2	11.750	9	23 43 45.70	2.3349	2 56 6.7	13.067
10	21 56 41.14	2.2363	6 59 53.5	11.807	10	23 46 5.89	2.3381	3 9 10.5	13.059
11	21 58 55.35	2.2375	6 48 3.4	11.862	11	23 48 26.27	2.3411	3 22 13.8	13.050
12	22 1 9.64	2.2387	6 36 10.1	11.916	12	23 50 46.82	2.3442	3 35 16.5	13.039
13	22 3 24.00	2.2399	6 24 13.5	11.969	13	23 53 7.57	2.3473	3 48 18.5	13.027
14	22 5 38.43	2.2412	6 12 13.8	12.023	14	23 55 28.50	2.3505	4 1 19.7	13.013
15	22 7 52.95	2.2426	6 0 11.1	12.071	15	23 57 49.63	2.3538	4 14 20.1	12.998
16	22 10 7.54	2.2439	5 48 5.3	12.122	16	0 0 10.95	2.3570	4 27 19.5	12.981
17	22 12 22.22	2.2454	5 35 56.5	12.171	17	0 2 32.47	2.3603	4 40 17.8	12.962
18	22 14 36.99	2.2468	5 23 44.8	12.218	18	0 4 54.18	2.3636	4 53 14.9	12.941
19	22 16 51.84	2.2483	5 11 30.3	12.264	19	0 7 16.10	2.3670	5 6 10.7	12.919
20	22 19 6.79	2.2499	4 59 13.1	12.309	20	0 9 38.22	2.3703	5 19 5.2	12.896
21	22 21 21.83	2.2514	4 46 53.2	12.353	21	0 12 0.54	2.3737	5 31 58.2	12.869
22	22 23 36.96	2.2530	4 34 30.7	12.397	22	0 14 23.06	2.3771	5 44 49.5	12.842
23	22 25 52.19	2.2547	4 22 5.6	12.439	23	0 16 45.79	2.3805	5 57 39.2	12.813
24	22 28 7.52	2.2563	S. 4 9 38.0	12.479	24	0 19 8.72	2.3840	N. 6 10 27.1	12.782

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 17.					FRIDAY 19.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	0 19 8.72	2.3840	N. 6 10 27.1	12.782	0	2 17 45.20	2.5543	N. 15 15 43.0	9.289
1	0 21 31.87	2.3875	6 23 13.1	12.750	1	2 20 18.55	2.5573	15 24 57.0	9.177
2	0 23 55.22	2.3910	6 35 57.1	12.716	2	2 22 52.08	2.5602	15 34 4.2	9.063
3	0 26 18.79	2.3946	6 48 39.0	12.680	3	2 25 25.77	2.5630	15 43 4.6	8.949
4	0 28 42.57	2.3981	7 1 18.7	12.642	4	2 27 59.64	2.5658	15 51 58.1	8.833
5	0 31 6.56	2.4017	7 13 56.1	12.602	5	2 30 33.67	2.5686	16 0 44.5	8.714
6	0 33 30.77	2.4053	7 26 31.0	12.561	6	2 33 7.87	2.5713	16 9 23.8	8.596
7	0 35 55.20	2.4089	7 39 3.4	12.518	7	2 35 42.22	2.5738	16 17 56.0	8.476
8	0 38 19.84	2.4125	7 51 33.2	12.474	8	2 38 16.73	2.5764	16 26 20.9	8.354
9	0 40 44.70	2.4162	8 4 0.3	12.428	9	2 40 51.39	2.5788	16 34 38.5	8.232
10	0 43 9.79	2.4199	8 16 24.6	12.380	10	2 43 26.19	2.5813	16 42 48.7	8.107
11	0 45 35.09	2.4235	8 28 45.9	12.330	11	2 46 1.14	2.5837	16 50 51.4	7.982
12	0 48 0.61	2.4272	8 41 4.2	12.278	12	2 48 36.23	2.5859	16 58 46.6	7.857
13	0 50 26.36	2.4309	8 53 19.3	12.225	13	2 51 11.45	2.5880	17 6 34.2	7.729
14	0 52 52.32	2.4346	9 5 31.2	12.170	14	2 53 46.79	2.5901	17 14 14.1	7.602
15	0 55 18.51	2.4383	9 17 39.7	12.112	15	2 56 22.26	2.5922	17 21 46.4	7.472
16	0 57 44.92	2.4420	9 29 44.7	12.054	16	2 58 57.85	2.5941	17 29 10.8	7.342
17	1 0 11.55	2.4458	9 41 46.2	11.994	17	3 1 33.55	2.5958	17 36 27.4	7.210
18	1 2 38.41	2.4495	9 53 44.0	11.932	18	3 4 9.35	2.5976	17 43 36.0	7.077
19	1 5 5.49	2.4532	10 5 38.0	11.867	19	3 6 45.26	2.5993	17 50 36.7	6.944
20	1 7 32.79	2.4569	10 17 28.1	11.802	20	3 9 21.27	2.6009	17 57 29.3	6.810
21	1 10 0.32	2.4607	10 29 14.3	11.735	21	3 11 57.37	2.6024	18 4 13.9	6.675
22	1 12 28.08	2.4645	10 40 56.3	11.666	22	3 14 33.56	2.6038	18 10 50.3	6.538
23	1 14 56.06	2.4682	N. 10 52 34.2	11.596	23	3 17 9.83	2.6051	N. 18 17 18.5	6.402
THURSDAY 18.					SATURDAY 20.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	1 17 24.26	2.4718	N. 11 4 7.8	11.523	0	3 19 46.17	2.6063	N. 18 23 38.5	6.264
1	1 19 52.68	2.4755	11 15 37.0	11.448	1	3 22 22.59	2.6075	18 29 50.2	6.126
2	1 22 21.32	2.4793	11 27 1.6	11.372	2	3 24 59.07	2.6085	18 35 53.6	5.987
3	1 24 50.19	2.4830	11 38 21.7	11.295	3	3 27 35.61	2.6094	18 41 48.6	5.847
4	1 27 19.28	2.4867	11 49 37.0	11.215	4	3 30 12.20	2.6103	18 47 35.2	5.706
5	1 29 48.59	2.4903	12 0 47.5	11.135	5	3 32 48.84	2.6110	18 53 13.3	5.565
6	1 32 18.11	2.4939	12 11 53.2	11.053	6	3 35 25.52	2.6117	18 58 43.0	5.423
7	1 34 47.86	2.4976	12 22 53.8	10.968	7	3 38 2.24	2.6123	19 4 4.1	5.281
8	1 37 17.82	2.5011	12 33 49.3	10.882	8	3 40 38.99	2.6127	19 9 16.7	5.138
9	1 39 47.99	2.5047	12 44 39.6	10.793	9	3 43 15.76	2.6130	19 14 20.7	4.994
10	1 42 18.38	2.5083	12 55 24.5	10.704	10	3 45 52.55	2.6133	19 19 16.0	4.850
11	1 44 48.98	2.5118	13 6 4.1	10.614	11	3 48 29.35	2.6134	19 24 2.7	4.706
12	1 47 19.79	2.5153	13 16 38.2	10.522	12	3 51 6.16	2.6134	19 28 40.7	4.561
13	1 49 50.81	2.5188	13 27 6.7	10.427	13	3 53 42.96	2.6133	19 33 10.0	4.416
14	1 52 22.04	2.5222	13 37 29.4	10.330	14	3 56 19.76	2.6132	19 37 30.6	4.270
15	1 54 53.47	2.5256	13 47 46.3	10.233	15	3 58 56.54	2.6128	19 41 42.4	4.124
16	1 57 25.11	2.5290	13 57 57.4	10.135	16	4 1 33.30	2.6124	19 45 45.5	3.979
17	1 59 56.95	2.5323	14 8 2.5	10.034	17	4 4 10.03	2.6119	19 49 39.9	3.833
18	2 2 28.98	2.5355	14 18 1.5	9.932	18	4 6 46.73	2.6113	19 53 25.4	3.685
19	2 5 1.21	2.5388	14 27 54.3	9.828	19	4 9 23.39	2.6106	19 57 2.1	3.538
20	2 7 33.63	2.5420	14 37 40.9	9.724	20	4 12 0.00	2.6098	20 0 30.0	3.392
21	2 10 6.25	2.5452	14 47 21.2	9.618	21	4 14 36.56	2.6088	20 3 49.1	3.245
22	2 12 39.05	2.5483	14 56 55.0	9.509	22	4 17 13.05	2.6077	20 6 59.4	3.097
23	2 15 12.04	2.5513	15 6 22.3	9.400	23	4 19 49.48	2.6066	20 10 0.8	2.950
24	2 17 45.20	2.5543	N. 15 15 43.0	9.289	24	4 22 25.84	2.6053	N. 20 12 53.4	2.803

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 21.							TUESDAY 23.						
	h	m	s	s	°	'		h	m	s	s	°	'
0	4	22	25.84	2.6053	N. 20	12 53.4	0	6	24	6.36	2.4318	N. 19	44 2.9
1	4	25	2.12	2.6039	20	15 37.2	1	6	26	32.11	2.4265	19	40 13.8
2	4	27	38.31	2.6024	20	18 12.1	2	6	28	57.54	2.4211	19	36 17.6
3	4	30	14.41	2.6008	20	20 38.2	3	6	31	22.64	2.4156	19	32 14.5
4	4	32	50.40	2.5990	20	22 55.4	4	6	33	47.41	2.4101	19	28 4.5
5	4	35	26.29	2.5972	20	25 3.8	5	6	36	11.85	2.4046	19	23 47.7
6	4	38	2.07	2.5953	20	27 3.4	6	6	38	35.96	2.3991	19	19 24.1
7	4	40	37.73	2.5933	20	28 54.2	7	6	40	59.74	2.3935	19	14 53.9
8	4	43	13.27	2.5912	20	30 36.2	8	6	43	23.18	2.3878	19	10 17.0
9	4	45	48.67	2.5899	20	32 9.5	9	6	45	46.28	2.3822	19	5 33.6
10	4	48	23.94	2.5866	20	33 34.0	10	6	48	9.04	2.3766	19	0 43.7
11	4	50	59.06	2.5841	20	34 49.7	11	6	50	31.47	2.3709	18	55 47.4
12	4	53	34.03	2.5815	20	35 56.7	12	6	52	53.55	2.3652	18	50 44.7
13	4	56	8.84	2.5789	20	36 55.0	13	6	55	15.29	2.3594	18	45 35.7
14	4	58	43.50	2.5762	20	37 44.6	14	6	57	36.68	2.3537	18	40 20.5
15	5	1	17.98	2.5733	20	38 25.5	15	6	59	57.73	2.3479	18	34 59.2
16	5	3	52.29	2.5703	20	38 57.8	16	7	2	18.43	2.3422	18	29 31.8
17	5	6	26.41	2.5672	20	39 21.6	17	7	4	38.79	2.3364	18	23 58.3
18	5	9	0.35	2.5641	20	39 36.7	18	7	6	58.80	2.3306	18	18 18.9
19	5	11	34.10	2.5608	20	39 43.3	19	7	9	18.46	2.3248	18	12 33.6
20	5	14	7.65	2.5575	20	39 41.3	20	7	11	37.77	2.3189	18	6 42.5
21	5	16	41.00	2.5541	20	39 30.9	21	7	13	56.73	2.3132	18	0 45.6
22	5	19	14.14	2.5505	20	39 12.1	22	7	16	15.35	2.3073	17	54 43.1
23	5	21	47.06	2.5468	N. 20	38 44.8	23	7	18	33.61	2.3014	N. 17	48 35.0
MONDAY 22.							WEDNESDAY 24.						
0	5	24	19.76	2.5432	N. 20	38 9.1	0	7	20	51.52	2.2956	N. 17	42 21.3
1	5	26	52.24	2.5393	20	37 25.1	1	7	23	9.08	2.2898	17	36 2.1
2	5	29	24.48	2.5354	20	36 32.9	2	7	25	26.29	2.2840	17	29 37.5
3	5	31	56.49	2.5315	20	35 32.4	3	7	27	43.16	2.2782	17	23 7.6
4	5	34	28.26	2.5275	20	34 23.7	4	7	29	59.68	2.2724	17	16 32.4
5	5	36	59.79	2.5234	20	33 6.9	5	7	32	15.85	2.2666	17	9 51.9
6	5	39	31.07	2.5192	20	31 41.9	6	7	34	31.67	2.2608	17	3 6.3
7	5	42	2.09	2.5148	20	30 8.9	7	7	36	47.15	2.2551	16	56 15.6
8	5	44	32.85	2.5104	20	28 27.8	8	7	39	2.28	2.2493	16	49 19.9
9	5	47	3.34	2.5060	20	26 38.8	9	7	41	17.06	2.2435	16	42 19.3
10	5	49	33.57	2.5015	20	24 41.8	10	7	43	31.50	2.2378	16	35 13.8
11	5	52	3.52	2.4969	20	22 37.0	11	7	45	45.59	2.2320	16	28 3.5
12	5	54	33.20	2.4923	20	20 24.4	12	7	47	59.34	2.2263	16	20 48.4
13	5	57	2.60	2.4876	20	18 4.0	13	7	50	12.75	2.2207	16	13 28.7
14	5	59	31.71	2.4828	20	15 35.9	14	7	52	25.82	2.2150	16	6 4.3
15	6	2	0.53	2.4779	20	13 0.1	15	7	54	38.55	2.2093	15	58 35.4
16	6	4	29.06	2.4731	20	10 16.7	16	7	56	50.94	2.2037	15	51 1.9
17	6	6	57.30	2.4681	20	7 25.8	17	7	59	2.99	2.1981	15	43 24.1
18	6	9	25.23	2.4630	20	4 27.4	18	8	1	14.71	2.1926	15	35 41.9
19	6	11	52.86	2.4579	20	1 21.5	19	8	3	26.10	2.1870	15	27 55.4
20	6	14	20.18	2.4528	19	58 8.3	20	8	5	37.15	2.1814	15	20 4.7
21	6	16	47.20	2.4477	19	54 47.8	21	8	7	47.87	2.1760	15	12 9.7
22	6	19	13.90	2.4424	19	51 20.0	22	8	9	58.27	2.1706	15	4 10.7
23	6	21	40.29	2.4372	19	47 45.0	23	8	12	8.34	2.1651	14	56 7.6
24	6	24	6.36	2.4318	N. 19	44 2.9	24	8	14	18.08	2.1597	N. 14	48 0.6

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 25.					SATURDAY 27.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
1	8 14 18.08	2.1597	N. 14 48	0.6	8.149	9 52 32.42	1.9521	N. 7 19	10.2
2	8 16 27.50	2.1543	14 39	49.7	8.214	9 54 29.45	1.9490	7 8	56.7
3	8 18 36.60	2.1490	14 31	34.9	8.278	9 56 26.30	1.9460	6 58	41.9
4	8 20 45.38	2.1438	14 23	16.3	8.342	9 58 22.97	1.9430	6 48	25.8
5	8 22 53.85	2.1385	14 14	53.9	8.403	10 0 19.46	1.9401	6 38	8.4
6	8 25 2.00	2.1333	14 6	27.9	8.463	10 2 15.78	1.9373	6 27	49.8
7	8 27 9.84	2.1281	13 57	58.3	8.523	10 4 11.93	1.9345	6 17	30.1
8	8 29 17.37	2.1230	13 49	25.1	8.582	10 6 7.92	1.9318	6 7	9.2
9	8 31 24.60	2.1179	13 40	48.4	8.640	10 8 3.74	1.9290	5 56	47.2
10	8 33 31.52	2.1128	13 32	8.3	8.697	10 9 59.40	1.9263	5 46	24.2
11	8 35 38.13	2.1077	13 23	24.8	8.753	10 11 54.90	1.9238	5 36	0.2
12	8 37 44.44	2.1027	13 14	38.0	8.808	10 13 50.25	1.9213	5 25	35.3
13	8 39 50.45	2.0978	13 5	47.9	8.862	10 15 45.46	1.9189	5 15	9.4
14	8 41 56.17	2.0929	12 56	54.6	8.914	10 17 40.52	1.9164	5 4	42.7
15	8 44 1.60	2.0880	12 47	58.2	8.966	10 19 35.43	1.9140	4 54	15.2
16	8 46 6.73	2.0832	12 38	58.7	9.017	10 21 30.20	1.9118	4 43	46.9
17	8 48 11.58	2.0785	12 29	56.1	9.067	10 23 24.84	1.9096	4 33	17.8
18	8 50 16.15	2.0738	12 20	50.6	9.117	10 25 19.35	1.9073	4 22	48.0
19	8 52 20.43	2.0691	12 11	42.1	9.165	10 27 13.72	1.9052	4 12	17.6
20	8 54 24.44	2.0645	12 2	30.8	9.212	10 29 7.97	1.9032	4 1	46.5
21	8 56 28.17	2.0598	11 53	16.7	9.258	10 31 2.10	1.9012	3 51	14.8
22	8 58 31.62	2.0553	11 43	59.8	9.304	10 32 56.11	1.8992	3 40	42.6
23	9 0 34.81	2.0509	11 34	40.2	9.349	10 34 50.00	1.8973	3 30	9.9
24	9 2 37.73	2.0463	N. 11 25	17.9	9.392	10 36 43.78	1.8953	N. 3 19	36.7
FRIDAY 26.					SUNDAY 28.				
0	9 4 40.37	2.0419	N. 11 15	53.1	9.434	10 38 37.44	1.8935	N. 3 9	3.2
1	9 6 42.76	2.0377	11 6	25.8	9.477	10 40 31.00	1.8918	2 58	29.2
2	9 8 44.89	2.0333	10 56	55.9	9.518	10 42 24.46	1.8901	2 47	54.9
3	9 10 46.76	2.0291	10 47	23.6	9.558	10 44 17.81	1.8884	2 37	20.3
4	9 12 48.38	2.0249	10 37	48.9	9.598	10 46 11.07	1.8868	2 26	45.4
5	9 14 49.75	2.0208	10 28	11.8	9.637	10 48 4.23	1.8853	2 16	10.2
6	9 16 50.87	2.0167	10 18	32.5	9.673	10 49 57.30	1.8838	2 5	34.9
7	9 18 51.75	2.0127	10 8	51.0	9.711	10 51 50.29	1.8824	1 54	59.4
8	9 20 52.39	2.0087	9 59	7.2	9.748	10 53 43.19	1.8810	1 44	23.8
9	9 22 52.79	2.0048	9 49	21.3	9.782	10 55 36.01	1.8797	1 33	48.1
10	9 24 52.96	2.0008	9 39	33.4	9.816	10 57 28.75	1.8784	1 23	12.3
11	9 26 52.89	1.9969	9 29	43.4	9.849	10 59 21.42	1.8772	1 12	36.6
12	9 28 52.59	1.9932	9 19	51.5	9.882	11 1 14.01	1.8760	1 2	0.9
13	9 30 52.07	1.9895	9 9	57.6	9.914	11 3 6.54	1.8749	0 51	25.3
14	9 32 51.33	1.9858	9 0	1.8	9.945	11 4 59.00	1.8739	0 40	49.8
15	9 34 50.37	1.9822	8 50	4.2	9.975	11 6 51.41	1.8729	0 30	14.4
16	9 36 49.19	1.9786	8 40	4.8	10.005	11 8 43.75	1.8720	0 19	39.2
17	9 38 47.80	1.9751	8 30	3.6	10.034	11 10 36.04	1.8710	N. 0 9	4.2
18	9 40 46.20	1.9717	8 20	0.7	10.062	11 12 28.27	1.8702	S. 0 1	30.5
19	9 42 44.40	1.9683	8 9	56.2	10.089	11 14 20.46	1.8694	0 12	4.9
20	9 44 42.39	1.9649	7 59	50.0	10.116	11 16 12.60	1.8687	0 22	39.0
21	9 46 40.19	1.9617	7 49	42.3	10.141	11 18 4.70	1.8679	0 33	12.8
22	9 48 37.79	1.9584	7 39	33.1	10.166	11 19 56.75	1.8673	0 43	46.1
23	9 50 35.20	1.9553	7 29	22.4	10.191	11 21 48.77	1.8666	0 54	19.0
24	9 52 32.42	1.9521	N. 7 19	10.2	10.214	11 23 40.74	1.8660	S. 1 4	51.4

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.					
MONDAY 29.					WEDNESDAY, MAY 1.									
	h m s	s	° ' "	"		h m s	s	° ' "	"					
0	11 23 40.74	1.8660	S. 1 4 51.4	10.536	0	12 53 31.34	1.8941	S. 9 9 38.7	9.432					
1	11 25 32.69	1.8657	1 15 23.3	10.527	PHASES OF THE MOON.									
2	11 27 24.62	1.8653	1 25 54.7	10.518										
3	11 29 16.52	1.8648	1 36 25.5	10.507										
4	11 31 8.39	1.8644	1 46 55.6	10.497										
5	11 33 0.25	1.8642	1 57 25.1	10.486										
6	11 34 52.09	1.8639	2 7 53.9	10.474										
7	11 36 43.92	1.8638	2 18 22.0	10.462										
8	11 38 35.74	1.8636	2 28 49.3	10.448										
9	11 40 27.55	1.8635	2 39 15.8	10.435										
10	11 42 19.36	1.8634	2 49 41.5	10.421										
11	11 44 11.16	1.8633	3 0 6.3	10.405	☉ Full Moon April 3 13 20.2 ☾ Last Quarter 11 15 57.1 ● New Moon 18 9 37.4 ☾ First Quarter 25 4 14.9									
12	11 46 2.96	1.8634	3 10 30.1	10.389										
13	11 47 54.77	1.8636	3 20 53.0	10.374										
14	11 49 46.59	1.8637	3 31 15.0	10.357										
15	11 51 38.41	1.8638	3 41 35.9	10.340										
16	11 53 30.25	1.8641	3 51 55.8	10.322										
17	11 55 22.10	1.8643	4 2 14.6	10.303										
18	11 57 13.97	1.8647	4 12 32.2	10.284										
19	11 59 5.86	1.8651	4 22 48.7	10.265										
20	12 0 57.78	1.8655	4 33 4.0	10.245						☾ Apogee April 4 18.5 ☾ Perigee 18 9.0				
21	12 2 49.72	1.8659	4 43 18.1	10.223										
22	12 4 41.69	1.8664	4 53 30.8	10.202										
23	12 6 33.69	1.8669	S. 5 3 42.3	10.180										
TUESDAY 30.														
0	12 8 25.72	1.8675	S. 5 13 52.4	10.157										
1	12 10 17.79	1.8682	5 24 1.2	10.134										
2	12 12 9.90	1.8689	5 34 8.5	10.110										
3	12 14 2.06	1.8697	5 44 14.4	10.086										
4	12 15 54.26	1.8703	5 54 18.8	10.061										
5	12 17 46.50	1.8711	6 4 21.7	10.035										
6	12 19 38.79	1.8720	6 14 23.0	10.009										
7	12 21 31.14	1.8729	6 24 22.8	9.982										
8	12 23 23.54	1.8738	6 34 20.9	9.954										
9	12 25 16.00	1.8748	6 44 17.3	9.926										
10	12 27 8.52	1.8758	6 54 12.0	9.897										
11	12 29 1.10	1.8768	7 4 5.0	9.868										
12	12 30 53.74	1.8779	7 13 56.2	9.838										
13	12 32 46.45	1.8791	7 23 45.6	9.807										
14	12 34 39.23	1.8803	7 33 33.1	9.777										
15	12 36 32.08	1.8815	7 43 18.8	9.745										
16	12 38 25.01	1.8828	7 53 2.5	9.712										
17	12 40 18.01	1.8840	8 2 44.3	9.680										
18	12 42 11.99	1.8853	8 12 24.1	9.646										
19	12 44 4.25	1.8867	8 22 1.8	9.612										
20	12 45 57.49	1.8881	8 31 37.5	9.577										
21	12 47 50.82	1.8896	8 41 11.1	9.542										
22	12 49 44.24	1.8910	8 50 42.5	9.505										
23	12 51 37.74	1.8925	9 0 11.7	9.468										
24	12 53 31.34	1.8941	S. 9 9 38.7	9.432										

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	Aldebaran	W.	94 3 32	2993	95 33 54	2998	97 4 9	3003	98 34 18	3008
	Pollux	W.	52 18 14	3110	53 46 11	3111	55 14 7	3112	56 42 3	3113
	MARS	W.	21 25 25	3325	22 49 8	3292	24 13 29	3264	25 38 23	3239
	Spica	E.	39 31 27	2982	38 0 52	2988	36 30 24	2993	35 0 2	2998
	Antares	E.	85 3 56	3005	83 33 49	3010	82 3 49	3015	80 33 55	3021
	JUPITER	E.	118 40 24	3025	117 10 42	3030	115 41 6	3034	114 11 35	3039
2	Pollux	W.	64 1 20	3119	65 29 6	3121	66 56 50	3123	68 24 32	3124
	MARS	W.	32 48 35	3170	34 15 20	3163	35 42 14	3157	37 9 15	3152
	Regulus	W.	26 58 54	3115	28 26 45	3112	29 54 40	3108	31 22 40	3105
	Spica	E.	27 29 41	3020	25 59 53	3024	24 30 11	3028	23 0 33	3032
	Antares	E.	73 6 1	3044	71 36 43	3048	70 7 30	3052	68 38 22	3057
	JUPITER	E.	106 45 24	3060	105 16 25	3063	103 47 30	3066	102 18 39	3070
	SATURN	E.	110 52 57	3043	109 23 38	3046	107 54 22	3049	106 25 10	3053
3	Pollux	W.	75 42 35	3133	77 10 5	3134	78 37 33	3136	80 4 59	3138
	MARS	W.	44 25 33	3137	45 52 58	3136	47 20 23	3134	48 47 51	3133
	Regulus	W.	38 43 21	3098	40 11 33	3097	41 39 46	3097	43 7 59	3096
	Antares	E.	61 14 0	3077	59 45 22	3080	58 16 48	3083	56 48 18	3087
	JUPITER	E.	94 55 27	3085	93 26 59	3088	91 58 35	3090	90 30 13	3092
	SATURN	E.	99 0 13	3068	97 31 24	3070	96 2 38	3073	94 33 55	3075
4	Pollux	W.	87 21 42	3145	88 48 57	3147	90 16 10	3148	91 43 22	3149
	MARS	W.	56 5 25	3131	57 32 57	3131	59 0 29	3130	60 28 2	3129
	Regulus	W.	50 29 6	3097	51 57 19	3097	53 25 32	3097	54 53 45	3097
	Antares	E.	49 26 53	3104	47 58 48	3108	46 30 48	3111	45 2 52	3114
	JUPITER	E.	83 9 1	3101	81 40 53	3102	80 12 47	3103	78 44 42	3104
	SATURN	E.	87 11 0	3084	85 42 31	3085	84 14 4	3086	82 45 38	3087
5	Pollux	W.	98 59 3	3153	100 26 8	3154	101 53 11	3155	103 20 13	3156
	MARS	W.	67 45 53	3128	69 13 29	3128	70 41 5	3127	72 8 42	3126
	Regulus	W.	62 14 52	3096	63 43 7	3095	65 11 22	3094	66 39 39	3093
	Spica	W.	8 11 56	3078	9 40 32	3077	11 9 10	3076	12 37 49	3074
	Antares	E.	37 44 16	3134	36 16 48	3138	34 49 25	3143	33 22 8	3150
	JUPITER	E.	71 24 32	3108	69 56 32	3108	68 28 32	3108	67 0 32	3107
	SATURN	E.	75 23 45	3091	73 55 25	3091	72 27 4	3090	70 58 43	3090
6	MARS	W.	79 27 4	3120	80 54 49	3119	82 22 36	3117	83 50 25	3115
	Regulus	W.	74 1 24	3087	75 29 50	3084	76 58 19	3082	78 26 51	3079
	Spica	W.	20 1 38	3065	21 30 30	3063	22 59 24	3061	24 28 21	3059
	JUPITER	E.	59 40 21	3103	58 12 15	3102	56 44 8	3100	55 15 59	3098
	SATURN	E.	63 36 48	3086	62 8 21	3085	60 39 53	3083	59 11 23	3081
7	MARS	W.	91 10 12	3102	92 38 19	3099	94 6 30	3095	95 34 45	3091
	Regulus	W.	85 50 20	3065	87 19 13	3060	88 48 11	3056	90 17 14	3052
	Spica	W.	31 53 55	3044	33 23 13	3040	34 52 36	3036	36 22 4	3031
	JUPITER	E.	47 54 34	3086	46 26 8	3083	44 57 38	3080	43 29 4	3077
	SATURN	E.	51 48 11	3069	50 19 23	3066	48 50 32	3062	47 21 36	3058
8	MARS	W.	102 57 15	3070	104 26 1	3065	105 54 54	3059	107 23 54	3053
	Regulus	W.	97 43 55	3026	99 13 35	3020	100 43 22	3014	102 13 17	3007
	Spica	W.	43 50 54	3005	45 21 0	2999	46 51 14	2993	48 21 36	2986

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	Aldebaran W.	100 4 21	3014	101 34 17	3018	103 4 7	3022	104 33 51	3026
	Pollux W.	58 9 57	3114	59 37 50	3115	61 5 41	3116	62 33 31	3117
	MARS W.	27 3 46	3219	28 29 33	3203	29 55 40	3190	31 22 1	3179
	Spica E.	33 29 46	3003	31 59 37	3007	30 29 33	3011	28 59 34	3016
	Antares E.	79 4 8	3026	77 34 27	3031	76 4 53	3035	74 35 24	3040
	JUPITER E.	112 42 10	3043	111 12 51	3047	109 43 37	3052	108 14 28	3056
2	Pollux W.	69 52 13	3126	71 19 51	3127	72 47 28	3129	74 15 3	3131
	MARS W.	38 36 22	3148	40 3 34	3144	41 30 50	3141	42 58 10	3138
	Regulus W.	32 56 44	3103	34 18 50	3101	35 46 59	3100	37 15 9	3098
	Spica E.	21 31 0	3035	20 1 31	3039	18 32 7	3043	17 2 47	3046
	Antares E.	67 9 20	3061	65 40 23	3065	64 11 31	3069	62 42 43	3073
	JUPITER E.	100 49 53	3073	99 21 10	3076	97 52 30	3080	96 23 56	3084
	SATURN E.	104 56 3	3056	103 27 0	3059	101 58 1	3062	100 29 5	3065
3	Pollux W.	81 32 23	3139	82 59 45	3140	84 27 6	3142	85 54 25	3143
	MARS W.	50 15 21	3133	51 42 51	3132	53 10 21	3131	54 37 53	3131
	Regulus W.	44 36 13	3097	46 4 26	3097	47 32 39	3097	49 0 52	3097
	Antares E.	55 19 53	3091	53 51 32	3094	52 23 15	3097	50 55 2	3101
	JUPITER E.	89 1 54	3094	87 33 37	3096	86 5 23	3098	84 37 11	3100
	SATURN E.	93 5 14	3078	91 36 37	3080	90 8 3	3081	88 39 31	3082
4	Pollux W.	93 10 33	3150	94 37 42	3151	96 4 50	3152	97 31 57	3153
	MARS W.	61 55 36	3130	63 23 9	3129	64 50 43	3129	66 18 18	3128
	Regulus W.	56 21 58	3097	57 50 11	3097	59 18 24	3096	60 46 38	3096
	Antares E.	43 35 0	3118	42 7 12	3122	40 39 29	3125	39 11 50	3129
	JUPITER E.	77 16 38	3105	75 48 35	3106	74 20 34	3107	72 52 33	3107
	SATURN E.	81 17 13	3089	79 48 50	3090	78 20 28	3091	76 52 6	3091
5	Pollux W.	104 47 15	3157	106 14 16	3158	107 41 16	3158	109 8 16	3158
	MARS W.	73 36 20	3125	75 3 59	3124	76 31 39	3123	77 59 21	3122
	Regulus W.	68 7 57	3092	69 36 16	3091	71 4 37	3089	72 33 0	3088
	Spica W.	14 6 30	3072	15 35 14	3070	17 4 0	3069	18 32 48	3067
	Antares E.	31 54 59	3157	30 27 58	3164	29 1 5	3172	27 34 22	3181
	JUPITER E.	65 32 31	3107	64 4 30	3106	62 36 28	3105	61 8 25	3104
	SATURN E.	69 30 21	3090	68 1 59	3089	66 33 37	3088	65 5 13	3087
6	MARS W.	85 18 17	3113	86 46 11	3110	88 14 8	3108	89 42 8	3105
	Regulus W.	79 55 26	3077	81 24 4	3074	82 52 45	3071	84 21 30	3068
	Spica W.	25 57 21	3056	27 26 24	3054	28 55 30	3051	30 24 40	3047
	JUPITER E.	53 47 47	3096	52 19 33	3094	50 51 17	3091	49 22 57	3089
	SATURN E.	57 42 50	3079	56 14 15	3077	54 45 37	3074	53 16 56	3071
7	MARS W.	97 3 5	3088	98 31 29	3083	99 59 59	3078	101 28 35	3074
	Regulus W.	91 46 22	3047	93 15 36	3043	94 44 56	3038	96 14 22	3032
	Spica W.	37 51 38	3027	39 21 17	3022	40 51 3	3017	42 20 55	3011
	JUPITER E.	42 0 27	3073	40 31 45	3069	39 2 58	3066	37 34 7	3062
	SATURN E.	45 52 35	3055	44 23 30	3051	42 54 20	3046	41 25 4	3042
8	MARS W.	108 53 0	3047	110 22 14	3041	111 51 35	3035	113 21 4	3029
	Regulus W.	103 43 21	3001	105 13 33	2994	106 43 53	2986	108 14 23	2978
	Spica W.	49 52 7	2979	51 22 46	2971	52 53 35	2963	54 24 34	2955

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
8	JUPITER E.	36 5 11	3058	34 36 10	3054	33 7 4	3050	31 37 53	3046
	SATURN E.	39 55 43	3037	38 26 16	3033	36 56 44	3028	35 27 6	3023
	SUN E.	131 44 23	3386	130 21 51	3379	128 59 10	3371	127 36 20	3364
9	Spica W.	55 55 43	2946	57 27 3	2937	58 58 34	2928	60 30 17	2919
	α Pegasi E.	92 53 26	3094	91 25 9	3085	89 56 41	3075	88 28 1	3065
	SUN E.	120 39 51	3319	119 16 1	3309	117 52 0	3298	116 27 46	3288
10	Spica W.	68 12 3	2865	69 45 6	2853	71 18 25	2842	72 51 59	2829
	Antares W.	23 24 37	3005	24 54 43	2981	26 25 20	2956	27 56 28	2933
	α Pegasi E.	81 1 43	3017	79 31 51	3006	78 1 46	2996	76 31 28	2985
	SUN E.	109 23 22	3229	107 57 47	3215	106 31 56	3202	105 5 49	3188
11	Spica W.	80 44 3	2761	82 19 21	2747	83 54 59	2732	85 30 56	2717
	Antares W.	35 39 13	2828	37 13 5	2809	38 47 22	2790	40 22 3	2771
	α Pegasi E.	68 56 40	2932	67 25 2	2922	65 53 12	2912	64 21 8	2901
	SUN E.	97 51 1	3114	96 23 9	3098	94 54 58	3082	93 26 27	3065
12	Spica W.	93 35 54	2637	95 13 58	2621	96 52 25	2604	98 31 15	2586
	Antares W.	48 21 40	2678	49 58 50	2659	51 36 25	2640	53 14 25	2621
	α Pegasi E.	56 37 39	2855	55 4 23	2847	53 30 56	2840	51 57 20	2834
	SUN E.	85 58 39	2979	84 28 0	2960	82 56 57	2942	81 25 32	2924
13	Antares W.	61 30 51	2527	63 11 26	2508	64 52 28	2489	66 33 57	2470
	JUPITER W.	27 2 30	2559	28 42 22	2536	30 22 46	2514	32 3 40	2492
	SATURN W.	23 22 19	2556	25 2 14	2533	26 42 41	2510	28 23 41	2487
	SUN E.	73 42 28	2828	72 8 37	2808	70 34 20	2789	68 59 37	2770
14	Antares W.	75 8 0	2377	76 52 8	2358	78 36 43	2340	80 21 45	2322
	JUPITER W.	40 35 37	2389	42 19 27	2369	44 3 46	2350	45 48 33	2331
	SATURN W.	36 56 26	2381	38 40 28	2362	40 24 58	2342	42 9 57	2323
	SUN E.	60 59 39	2672	59 22 21	2652	57 44 37	2633	56 6 26	2614
15	Antares W.	89 13 23	2235	91 0 59	2218	92 48 59	2202	94 37 23	2187
	JUPITER W.	54 39 16	2240	56 26 44	2223	58 14 38	2206	60 2 57	2190
	SATURN W.	51 1 44	2231	52 49 25	2214	54 37 32	2197	56 26 4	2180
	SUN E.	47 49 10	2522	46 8 28	2504	44 27 21	2488	42 45 51	2472
16	Antares W.	103 45 1	2116	105 35 35	2103	107 26 29	2092	109 17 41	2081
	JUPITER W.	69 10 26	2115	71 1 2	2102	72 51 58	2089	74 43 15	2077
	SATURN W.	65 34 40	2106	67 25 30	2093	69 16 40	2081	71 8 9	2069
	SUN E.	34 12 47	2398	32 29 9	2385	30 45 12	2373	29 0 57	2361
20	SUN W.	22 39 18	2342	24 24 17	2351	26 9 2	2361	27 53 33	2372
	Pollux E.	59 43 14	2145	57 53 23	2161	56 3 57	2178	54 14 57	2196
	MARS E.	92 11 23	2121	90 20 56	2134	88 30 49	2147	86 41 2	2160
	Regulus E.	96 6 6	2053	94 13 55	2064	92 22 1	2075	90 30 24	2086
21	SUN W.	36 31 49	2438	38 14 29	2454	39 56 47	2470	41 38 43	2486
	MARS E.	77 37 0	2230	75 49 17	2246	74 1 58	2262	72 15 3	2280
	Regulus E.	81 17 7	2155	79 27 32	2170	77 38 19	2186	75 49 30	2202

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
8	JUPITER	E.	30 8 37	3042	28 39 16	3039	27 9 51	3035	25 40 22	3031
	SATURN	E.	33 57 22	3018	32 27 32	3013	30 57 35	3008	29 27 32	3002
	SUN	E.	126 13 22	3355	124 50 14	3347	123 26 57	3338	122 3 29	3329
9	Spica	W.	62 2 12	2909	63 34 19	2898	65 6 40	2887	66 39 14	2876
	α Pegasi	E.	86 59 9	3056	85 30 6	3046	84 0 51	3036	82 31 23	3026
	SUN	E.	115 3 20	3276	113 38 41	3265	112 13 49	3253	110 48 43	3241
10	Spica	W.	74 25 50	2816	75 59 57	2803	77 34 21	2789	79 9 3	2775
	Antares	W.	29 28 5	2910	31 0 12	2889	32 32 46	2868	34 5 46	2847
	α Pegasi	E.	75 0 57	2975	73 30 13	2964	71 59 15	2954	70 28 4	2943
	SUN	E.	103 39 26	3174	102 12 46	3160	100 45 49	3145	99 18 34	3130
11	Spica	W.	87 7 13	2701	88 43 51	2685	90 20 50	2669	91 58 11	2653
	Antares	W.	41 57 9	2752	43 32 40	2734	45 8 35	2715	46 44 55	2696
	α Pegasi	E.	62 48 51	2891	61 16 21	2882	59 43 39	2873	58 10 45	2861
	SUN	E.	91 57 35	3049	90 28 23	3032	88 58 50	3014	87 28 55	2997
12	Spica	W.	100 10 29	2569	101 50 6	2551	103 30 8	2533	105 10 35	2515
	Antares	W.	54 52 51	2603	56 31 42	2584	58 10 59	2565	59 50 42	2546
	α Pegasi	E.	50 23 36	2829	48 49 46	2825	47 15 51	2822	45 41 51	2819
	SUN	E.	79 53 43	2905	78 21 31	2887	76 48 55	2867	75 15 54	2848
13	Antares	W.	68 15 52	2451	69 58 14	2432	71 41 2	2413	73 24 18	2395
	JUPITER	W.	33 45 5	2471	35 26 59	2450	37 9 22	2429	38 52 15	2409
	SATURN	W.	30 5 13	2465	31 47 16	2443	33 29 50	2422	35 12 53	2401
	SUN	E.	67 24 30	2750	65 48 56	2730	64 12 57	2710	62 36 31	2691
14	Antares	W.	82 7 13	2304	83 53 7	2286	85 39 27	2269	87 26 12	2251
	JUPITER	W.	47 33 48	2312	49 19 30	2294	51 5 38	2275	52 52 14	2258
	SATURN	W.	43 55 24	2304	45 41 18	2285	47 27 40	2266	49 14 29	2249
	SUN	E.	54 27 50	2595	52 48 48	2576	51 9 20	2558	49 29 27	2540
15	Antares	W.	96 26 10	2172	98 15 20	2157	100 4 53	2143	101 54 47	2130
	JUPITER	W.	61 51 40	2173	63 40 48	2159	65 30 18	2144	67 20 11	2129
	SATURN	W.	58 15 1	2165	60 4 22	2150	61 54 5	2135	63 44 11	2120
	SUN	E.	41 3 58	2456	39 21 42	2441	37 39 5	2425	35 56 6	2411
16	Antares	W.	111 9 10	2070	113 0 55	2061	114 52 55	2052	116 45 9	2043
	JUPITER	W.	76 34 49	2066	78 26 41	2054	80 18 51	2044	82 11 16	2035
	SATURN	W.	72 59 56	2057	74 52 1	2046	76 44 23	2036	78 17 1	2026
	SUN	E.	27 16 27	2351	25 31 42	2343	23 46 45	2335	22 1 36	2326
20	SUN	W.	29 37 48	2384	31 21 46	2397	33 5 26	2410	34 48 47	2424
	Pollux	E.	52 26 24	2215	50 38 19	2236	48 50 45	2259	47 3 45	2283
	MARS	E.	84 51 34	2172	83 2 25	2185	81 13 35	2199	79 25 6	2214
	Regulus	E.	88 39 4	2099	86 48 4	2113	84 57 24	2126	83 7 5	2140
21	SUN	W.	43 20 16	2503	45 1 25	2520	46 42 10	2538	48 22 31	2555
	MARS	E.	70 28 34	2298	68 42 31	2316	66 56 54	2334	65 11 44	2353
	Regulus	E.	74 1 5	2218	72 13 5	2236	70 25 31	2253	68 38 22	2270

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.			P. L. of Diff.	IIIh.			P. L. of Diff.	VIh.			P. L. of Diff.	IXh.			P. L. of Diff.
			°	'	"		°	'	"		°	'	"		°	'	"	
22	SUN	W.	50	2	28	2574	51	41	58	2593	53	21	3	2611	54	59	43	2630
	MARS	E.	63	27	1	2372	61	42	46	2392	59	59	0	2412	58	15	42	2433
	Regulus	E.	66	51	39	2289	65	5	23	2307	63	19	34	2325	61	34	11	2344
23	SUN	W.	63	6	30	2727	64	42	33	2747	66	18	10	2767	67	53	21	2785
	Aldebaran	W.	27	15	1	2456	28	57	16	2470	30	39	12	2484	32	20	48	2499
	MARS	E.	49	46	38	2540	48	6	20	2563	46	26	34	2586	44	47	20	2609
	Regulus	E.	52	54	15	2442	51	11	40	2463	49	29	35	2483	47	47	58	2503
	Spica	E.	106	36	43	2408	104	53	19	2426	103	10	21	2444	101	27	49	2463
24	SUN	W.	75	42	56	2883	77	15	36	2903	78	47	51	2922	80	19	42	2940
	Aldebaran	W.	40	43	26	2577	42	22	52	2594	44	1	55	2610	45	40	36	2626
	MARS	E.	36	39	18	2735	35	3	24	2763	33	28	9	2792	31	53	30	2822
	Regulus	E.	39	27	2	2609	37	48	19	2631	36	10	7	2653	34	32	24	2677
	Spica	E.	93	1	38	2553	91	21	39	2572	89	42	5	2589	88	2	54	2605
25	SUN	W.	87	53	14	3030	89	22	50	3047	90	52	5	3063	92	21	0	3080
	Aldebaran	W.	53	48	38	2705	55	25	11	2720	57	1	23	2735	58	37	16	2750
	Spica	E.	79	52	48	2689	78	15	54	2705	76	39	21	2720	75	3	8	2736
26	SUN	W.	99	40	38	3157	101	7	39	3171	102	34	23	3184	104	0	51	3198
	Aldebaran	W.	66	31	57	2820	68	5	59	2832	69	39	45	2845	71	13	14	2858
	Spica	E.	67	7	0	2808	65	32	42	2821	63	58	41	2833	62	24	56	2846
	Antares	E.	112	29	42	2835	110	55	59	2847	109	22	32	2859	107	49	21	2871
27	SUN	W.	111	9	14	3260	112	34	12	3271	113	58	56	3282	115	23	28	3293
	Aldebaran	W.	78	56	50	2915	80	28	50	2925	82	0	37	2935	83	32	12	2944
	Pollux	W.	37	46	44	3125	39	14	23	3122	40	42	6	3119	42	9	53	3118
	Spica	E.	54	40	9	2904	53	7	55	2914	51	35	54	2924	50	4	5	2934
	Antares	E.	100	7	12	2927	98	35	28	2938	97	3	57	2948	95	32	38	2953
28	SUN	W.	122	23	12	3339	123	46	38	3348	125	9	54	3356	126	33	1	3363
	Aldebaran	W.	91	7	15	2987	92	37	44	2994	94	8	4	3001	95	38	15	3008
	Pollux	W.	49	28	55	3120	50	56	40	3121	52	24	24	3122	53	52	7	3124
	Spica	E.	42	27	58	2977	40	57	16	2985	39	26	44	2992	37	56	21	2998
	Antares	E.	87	58	57	3000	86	28	44	3003	84	58	41	3015	83	28	46	3022
	JUPITER	E.	122	54	2	2993	121	23	40	3000	119	53	27	3006	118	23	22	3013
29	Aldebaran	W.	103	7	8	3038	104	36	34	3043	106	5	53	3047	107	35	7	3052
	Pollux	W.	61	10	2	3134	62	37	30	3136	64	4	55	3138	65	32	18	3140
	MARS	W.	26	26	5	3305	27	50	11	3295	29	14	28	3285	30	38	57	3277
	Spica	E.	30	26	23	3028	28	56	45	3033	27	27	13	3037	25	57	46	3042
	Antares	E.	76	1	15	3052	74	32	7	3057	73	3	5	3062	71	34	9	3067
	JUPITER	E.	110	54	47	3039	109	25	23	3044	107	56	5	3048	106	26	52	3052
	SATURN	E.	114	15	37	3035	112	46	8	3040	111	16	45	3044	109	47	27	3048
30	Pollux	W.	72	48	42	3148	74	15	53	3149	75	43	3	3150	77	10	12	3151
	MARS	W.	37	43	17	3253	39	8	24	3249	40	33	35	3246	41	58	50	3244
	Regulus	W.	35	48	6	3119	37	15	53	3118	38	43	41	3116	40	11	31	3114
	Antares	E.	64	10	49	3087	62	42	23	3090	61	14	1	3093	59	45	43	3096
	JUPITER	E.	99	1	52	3068	97	33	3	3070	96	4	17	3072	94	35	33	3073
	SATURN	E.	102	22	4	3065	100	53	11	3066	99	24	20	3068	97	55	32	3070

GREENWICH MEAN TIME

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
22	SUN	W.	56 37 57	2650	58 15 45	2670	59 53 5	2689	61 30 0	2707
	MARS	E.	56 32 54	2453	54 50 35	2475	53 8 46	2496	51 27 27	2517
	Regulus	E.	59 49 16	2364	58 4 49	2383	56 20 50	2403	54 37 19	2422
23	SUN	W.	69 28 7	2806	71 2 27	2826	72 36 21	2845	74 9 51	2864
	Aldebaran	W.	34 2 3	2515	35 42 56	2530	37 23 28	2545	39 3 38	2561
	MARS	E.	43 8 37	2633	41 30 27	2657	39 52 50	2683	38 15 47	2708
	Regulus	E.	46 6 48	2524	44 26 8	2545	42 45 57	2566	41 6 15	2587
	Spica	E.	99 45 44	2482	98 4 5	2499	96 22 51	2517	94 42 2	2535
24	SUN	W.	81 51 10	2959	83 22 14	2977	84 52 56	2994	86 23 16	3012
	Aldebaran	W.	47 18 56	2612	48 56 53	2658	50 34 29	2674	52 11 44	2689
	MARS	E.	30 19 31	2855	28 46 15	2890	27 13 43	2926	25 41 57	2965
	Regulus	E.	32 55 13	2701	31 18 34	2725	29 42 28	2750	28 6 55	2776
	Spica	E.	86 24 7	2623	84 45 43	2640	83 7 43	2657	81 30 5	2673
25	SUN	W.	93 49 34	3096	95 17 48	3112	96 45 43	3127	98 13 19	3142
	Aldebaran	W.	60 12 50	2765	61 48 4	2779	63 23 0	2793	64 57 37	2806
	Spica	E.	73 27 16	2751	71 51 44	2766	70 16 31	2780	68 41 36	2794
26	SUN	W.	105 27 3	3212	106 52 58	3225	108 18 38	3237	109 44 3	3249
	Aldebaran	W.	72 46 27	2869	74 19 25	2881	75 52 7	2893	77 24 35	2904
	Spica	E.	60 51 28	2859	59 18 16	2870	57 45 19	2882	56 12 37	2893
	Antares	E.	106 16 26	2883	104 43 46	2895	103 11 21	2906	101 39 10	2916
27	SUN	W.	116 47 47	3303	118 11 55	3313	119 35 51	3322	120 59 37	3331
	Aldebaran	W.	85 3 35	2953	86 34 46	2962	88 5 46	2970	89 36 36	2979
	Pollux	W.	43 37 41	3117	45 5 30	3117	46 33 19	3117	48 1 8	3118
	Spica	E.	48 32 29	2943	47 1 5	2952	45 29 52	2961	43 58 50	2969
	Antares	E.	94 1 32	2967	92 30 37	2975	90 59 53	2984	89 29 20	2992
28	SUN	W.	127 56 0	3370	129 18 51	3377	130 41 34	3383	132 4 10	3388
	Aldebaran	W.	97 8 17	3015	98 38 11	3021	100 7 57	3027	101 37 36	3033
	Pollux	W.	55 19 47	3127	56 47 24	3129	58 14 59	3131	59 42 32	3133
	Spica	E.	36 26 6	3005	34 55 59	3011	33 26 0	3017	31 56 8	3022
	Antares	E.	81 59 0	3029	80 29 23	3034	78 59 53	3040	77 30 30	3046
	JUPITER	E.	116 53 25	3018	115 23 35	3025	113 53 53	3030	112 24 17	3034
29	Aldebaran	W.	109 4 15	3056	110 33 18	3060	112 2 16	3064	113 31 10	3067
	Pollux	W.	66 59 39	3142	68 26 57	3143	69 54 14	3145	71 21 29	3147
	MARS	W.	32 3 35	3271	33 28 20	3265	34 53 13	3259	36 18 13	3255
	Spica	E.	24 28 25	3046	22 59 9	3049	21 29 57	3053	20 0 50	3056
	Antares	E.	70 5 19	3071	68 36 34	3075	67 7 55	3079	65 39 20	3083
	JUPITER	E.	104 57 44	3056	103 28 40	3059	101 59 41	3062	100 30 45	3065
	SATURN	E.	108 18 14	3052	106 49 5	3056	105 20 1	3059	103 51 1	3062
30	Pollux	W.	78 37 20	3152	80 4 26	3153	81 31 32	3153	82 58 37	3154
	MARS	W.	43 24 7	3242	44 49 26	3240	46 14 48	3238	47 40 12	3236
	Regulus	W.	41 39 24	3113	43 7 18	3112	44 35 12	3111	46 3 8	3110
	Antares	E.	58 17 29	3099	56 49 18	3102	55 21 10	3104	53 53 6	3106
	JUPITER	E.	93 6 51	3076	91 38 12	3077	90 9 34	3078	88 40 57	3079
	SATURN	E.	96 26 46	3072	94 58 2	3073	93 29 20	3074	92 0 39	3075

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.	
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Diff. for 1 Hour.			
		h m s	s	° ' "	"	' "	s	m s	s	
Wed.	1	2 31 56.65	9.529	N.14 56 54.1	+45.62	15 53.21	65.95	2 55.40	0.327	
Thur.	2	2 35 45.61	9.551	15 15 1.5	45.00	15 52.98	66.03	3 2.98	0.305	
Frid.	3	2 39 35.10	9.574	15 32 53.9	44.36	15 52.75	66.11	3 10.03	0.282	
Sat.	4	2 43 25.13	9.597	15 50 30.8	+43.71	15 52.52	66.19	3 16.54	0.259	
SUN.	5	2 47 15.72	9.620	16 7 52.1	43.06	15 52.29	66.27	3 22.48	0.236	
Mon.	6	2 51 6.88	9.644	16 24 57.4	42.39	15 52.07	66.35	3 27.85	0.212	
Tues.	7	2 54 58.61	9.668	16 41 46.3	+41.70	15 51.84	66.43	3 32.66	0.188	
Wed.	8	2 58 50.93	9.692	16 58 18.7	41.00	15 51.62	66.51	3 36.89	0.164	
Thur.	9	3 2 43.83	9.717	17 14 34.2	40.29	15 51.40	66.59	3 40.53	0.140	
Frid.	10	3 6 37.32	9.741	17 30 32.5	+39.57	15 51.18	66.67	3 43.58	0.115	
Sat.	11	3 10 31.41	9.766	17 46 13.4	38.83	15 50.96	66.75	3 46.05	0.090	
SUN.	12	3 14 26.10	9.791	18 1 36.5	38.08	15 50.75	66.83	3 47.92	0.065	
Mon.	13	3 18 21.38	9.816	18 16 41.5	+37.32	15 50.54	66.91	3 49.18	0.040	
Tues.	14	3 22 17.26	9.840	18 31 28.2	36.55	15 50.34	66.99	3 49.86	0.016	
Wed.	15	3 26 13.74	9.865	18 45 56.1	35.77	15 50.14	67.07	3 49.93	0.000	
Thur.	16	3 30 10.79	9.890	19 0 5.2	+34.98	15 49.95	67.16	3 49.43	0.033	
Frid.	17	3 34 8.43	9.914	19 13 55.0	34.17	15 49.75	67.25	3 48.35	0.057	
Sat.	18	3 38 6.64	9.938	19 27 25.3	33.36	15 49.56	67.33	3 46.72	0.080	
SUN.	19	3 42 5.40	9.961	19 40 35.8	+32.54	15 49.37	67.41	3 44.51	0.103	
Mon.	20	3 46 4.72	9.983	19 53 26.2	31.69	15 49.19	67.49	3 41.76	0.126	
Tues.	21	3 50 4.56	10.005	20 5 56.3	30.82	15 49.01	67.57	3 38.47	0.148	
Wed.	22	3 54 4.94	10.027	20 18 5.8	+29.95	15 48.83	67.64	3 34.66	0.169	
Thur.	23	3 58 5.83	10.048	20 29 54.4	29.08	15 48.66	67.72	3 30.34	0.190	
Frid.	24	4 2 7.22	10.069	20 41 22.0	28.20	15 48.49	67.79	3 25.51	0.211	
Sat.	25	4 6 9.11	10.089	20 52 28.3	+27.31	15 48.32	67.86	3 20.19	0.232	
SUN.	26	4 10 11.49	10.109	21 3 13.0	26.41	15 48.16	67.93	3 14.39	0.252	
Mon.	27	4 14 14.35	10.129	21 13 35.9	25.49	15 48.00	68.00	3 8.12	0.271	
Tues.	28	4 18 17.66	10.148	21 23 36.9	+24.57	15 47.85	68.06	3 1.38	0.290	
Wed.	29	4 22 21.43	10.166	21 33 15.7	23.65	15 47.70	68.12	2 54.18	0.309	
Thur.	30	4 26 25.64	10.184	21 42 32.2	22.72	15 47.55	68.18	2 46.55	0.327	
Frid.	31	4 30 30.28	10.202	21 51 26.0	21.77	15 47.40	68.24	2 38.49	0.345	
Sat.	32	4 34 35.34	10.219	N.21 59 57.1	+20.82	15 47.26	68.30	2 30.01	0.362	

NOTE.—The mean time of semidiameter passing may be found by subtracting 0.18 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ' "	"	m s	s	h m s
Wed.	1	2 31 57.11	+ 9.530	N. 14 56 56.3	+ 45.62	2 55.42	+ 0.327	2 34 52.53
Thur.	2	2 35 46.09	9.552	15 15 3.8	45.00	3 3.00	0.305	2 38 49.09
Frid.	3	2 39 35.60	9.574	15 32 56.2	44.36	3 10.05	0.282	2 42 45.64
Sat.	4	2 43 25.65	+ 9.597	15 50 33.2	+ 43.71	3 16.55	+ 0.259	2 46 42.20
SUN.	5	2 47 16.26	9.620	16 7 54.5	43.06	3 22.49	0.236	2 50 38.75
Mon.	6	2 51 7.44	9.644	16 24 59.8	42.39	3 27.86	0.212	2 54 35.30
Tues.	7	2 54 59.19	+ 9.668	16 41 48.8	+ 41.70	3 32.67	+ 0.188	2 58 31.86
Wed.	8	2 58 51.52	9.692	16 58 21.2	41.00	3 36.90	0.164	3 2 28.42
Thur.	9	3 2 44.43	9.717	17 14 36.7	40.29	3 40.54	0.140	3 6 24.97
Frid.	10	3 6 37.93	+ 9.741	17 30 35.0	+ 39.57	3 43.59	+ 0.115	3 10 21.52
Sat.	11	3 10 32.03	9.766	17 46 15.8	38.83	3 46.05	0.090	3 14 18.08
SUN.	12	3 14 26.72	9.791	18 1 38.9	38.08	3 47.92	0.065	3 18 14.64
Mon.	13	3 18 22.01	+ 9.816	18 16 43.9	+ 37.32	3 49.18	+ 0.040	3 22 11.19
Tues.	14	3 22 17.89	9.840	18 31 30.5	36.55	3 49.86	+ 0.016	3 26 7.75
Wed.	15	3 26 14.37	9.865	18 45 58.4	35.77	3 49.93	- 0.009	3 30 4.30
Thur.	16	3 30 11.42	+ 9.889	19 0 7.4	+ 34.98	3 49.43	- 0.033	3 34 0.86
Frid.	17	3 34 9.06	9.913	19 13 57.2	34.17	3 48.35	0.057	3 37 57.41
Sat.	18	3 38 7.26	9.937	19 27 27.4	33.36	3 46.71	0.080	3 41 53.97
SUN.	19	3 42 6.02	+ 9.960	19 40 37.8	+ 32.54	3 44.50	- 0.103	3 45 50.52
Mon.	20	3 46 5.33	9.982	19 53 28.2	31.69	3 41.75	0.126	3 49 47.08
Tues.	21	3 50 5.17	10.004	20 5 58.2	30.82	3 38.46	0.148	3 53 43.64
Wed.	22	3 54 5.54	+ 10.026	20 18 7.6	+ 29.95	3 34.65	- 0.169	3 57 40.19
Thur.	23	3 58 6.42	10.047	20 29 56.1	29.08	3 30.33	0.190	4 1 36.75
Frid.	24	4 2 7.80	10.068	20 41 23.6	28.20	3 25.50	0.211	4 5 33.30
Sat.	25	4 6 9.68	+ 10.088	20 52 29.8	+ 27.31	3 20.18	- 0.232	4 9 29.86
SUN.	26	4 10 12.04	10.108	21 3 14.4	26.41	3 14.38	0.252	4 13 26.42
Mon.	27	4 14 14.88	10.128	21 13 37.2	25.49	3 8.10	0.271	4 17 22.97
Tues.	28	4 18 18.17	+ 10.147	21 23 38.1	+ 24.57	3 1.36	- 0.290	4 21 19.53
Wed.	29	4 22 21.92	10.165	21 33 16.8	23.65	2 54.16	0.309	4 25 16.08
Thur.	30	4 26 26.11	10.183	21 42 33.2	22.72	2 46.53	0.327	4 29 12.64
Frid.	31	4 30 30.73	10.201	21 51 27.0	21.77	2 38.47	0.345	4 33 9.20
Sat.	32	4 34 35.77	+ 10.218	N. 21 59 58.0	+ 20.82	2 29.99	- 0.362	4 37 5.76

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

Diff. for 1 Hour,
+ 9^s.8565.
(Table III.)

AT GREENWICH MEAN NOON.										
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.		
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.					
		λ	λ'							
		$^{\circ}$	$'$	$''$	$''$			h	m	s
1	121	40	24	43.3	24 13.8	145.44	0.00	0.0034404	+44.7	21 21 36.93
2	122	41	22	53.0	22 23.4	145.37	+ 0.10	0.0035474	44.5	21 17 41.02
3	123	42	21	1.0	20 31.2	145.30	0.23	0.0036538	44.2	21 13 45.11
4	124	43	19	7.2	18 37.4	145.23	+ 0.36	0.0037596	+44.0	21 9 49.20
5	125	44	17	11.9	16 41.8	145.16	0.49	0.0038648	43.7	21 5 53.30
6	126	45	15	14.9	14 44.7	145.09	0.63	0.0039694	43.4	21 1 57.39
7	127	46	13	16.4	12 46.0	145.03	+ 0.74	0.0040732	+43.1	20 58 1.48
8	128	47	11	16.4	10 46.0	144.97	0.83	0.0041762	42.7	20 54 5.57
9	129	48	9	15.1	8 44.6	144.92	0.89	0.0042783	42.3	20 50 9.66
10	130	49	7	12.4	6 41.8	144.86	+ 0.93	0.0043793	+41.9	20 46 13.75
11	131	50	5	8.5	4 37.7	144.81	0.95	0.0044792	41.4	20 42 17.84
12	132	51	3	3.3	2 32.4	144.76	0.93	0.0045779	40.8	20 38 21.93
13	133	52	0	56.9	0 25.9	144.71	+ 0.89	0.0046750	+40.1	20 34 26.02
14	134	52	58	49.3	58 18.1	144.66	0.79	0.0047704	39.4	20 30 30.11
15	135	53	56	40.5	56 9.2	144.61	0.68	0.0048640	38.6	20 26 34.20
16	136	54	54	30.4	53 59.0	144.56	+ 0.56	0.0049557	+37.8	20 22 38.30
17	137	55	52	19.1	51 47.5	144.50	0.42	0.0050452	36.9	20 18 42.39
18	138	56	50	6.4	49 34.6	144.44	0.28	0.0051327	36.0	20 14 46.47
19	139	57	47	52.3	47 20.4	144.38	+ 0.13	0.0052179	+35.1	20 10 50.56
20	140	58	45	36.7	45 4.7	144.32	+ 0.01	0.0053010	34.2	20 6 54.66
21	141	59	43	19.7	42 47.5	144.26	- 0.08	0.0053819	33.3	20 2 58.75
22	142	60	41	1.1	40 28.8	144.19	- 0.18	0.0054608	+32.5	19 59 2.84
23	143	61	38	41.0	38 8.5	144.13	0.22	0.0055378	31.7	19 55 6.93
24	144	62	36	19.4	35 46.8	144.07	0.25	0.0056130	31.0	19 51 11.02
25	145	63	33	56.3	33 23.5	144.01	- 0.23	0.0056865	+30.3	19 47 15.11
26	146	64	31	31.7	30 58.7	143.95	0.20	0.0057584	29.6	19 43 19.19
27	147	65	29	5.6	28 32.6	143.89	0.13	0.0058287	29.0	19 39 23.28
28	148	66	26	38.2	26 5.0	143.83	- 0.05	0.0058976	+28.4	19 35 27.37
29	149	67	24	9.5	23 36.2	143.78	+ 0.04	0.0059650	27.8	19 31 31.46
30	150	68	21	39.6	21 6.0	143.73	0.18	0.0060311	27.3	19 27 35.55
31	151	69	19	8.4	18 34.6	143.68	0.31	0.0060960	26.8	19 23 39.64
32	152	70	16	36.1	16 2.2	143.63	+ 0.44	0.0061596	+26.2	19 19 43.73

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0^h 0^m 0^s of the Besselian fictitious year.

Diff. for 1 Hour,
—9^s.8296.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMI- DIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	' "	' "	' "	"	' "	"	h m	m	d
1	14 44.7	14 44.2	54 0.2	-0.21	53 58.4	-0.08	10 37.1	+1.80	12.6
2	14 44.2	14 44.5	53 58.2	+0.04	53 59.3	+0.15	11 21.0	1.86	13.6
3	14 45.2	14 46.2	54 1.8	0.26	54 5.5	0.36	12 6.4	1.93	14.6
4	14 47.5	14 49.2	54 10.5	+0.47	54 16.8	+0.57	12 53.5	+1.99	15.6
5	14 51.3	14 53.7	54 24.3	0.68	54 33.0	0.78	13 42.1	2.05	16.6
6	14 56.4	14 59.5	54 43.1	0.90	54 54.5	1.00	14 31.7	2.08	17.6
7	15 3.0	15 6.9	55 7.3	+1.12	55 21.6	+1.25	15 21.9	+2.09	18.6
8	15 11.1	15 15.8	55 37.2	1.37	55 54.4	1.49	16 12.0	2.08	19.6
9	15 20.9	15 26.3	56 13.0	1.60	56 33.0	1.72	17 1.8	2.07	20.6
10	15 32.1	15 38.3	56 54.3	+1.83	57 16.8	+1.92	17 51.4	+2.06	21.6
11	15 44.7	15 51.3	57 40.3	1.99	58 4.6	2.04	18 40.9	2.07	22.6
12	15 58.0	16 4.7	58 29.2	2.05	58 53.9	2.04	19 30.9	2.11	23.6
13	16 11.3	16 17.6	59 18.1	+1.98	59 41.3	+1.87	20 22.4	+2.18	24.6
14	16 23.5	16 28.8	60 2.9	1.71	60 22.3	1.50	21 16.0	2.29	25.6
15	16 33.3	16 36.8	60 38.8	1.23	60 52.0	0.93	22 12.3	2.41	26.6
16	16 39.4	16 40.7	61 1.2	+0.59	61 6.1	+0.22	23 11.5	+2.52	27.6
17	16 40.8	16 39.6	61 6.4	-0.17	61 2.1	-0.55	0		28.6
18	16 37.1	16 33.5	60 53.1	0.93	60 39.7	1.28	0 12.9	2.58	0.3
19	16 28.8	16 23.1	60 22.3	-1.59	60 1.6	-1.85	1 14.8	+2.56	1.3
20	16 16.7	16 9.6	59 37.9	2.06	59 12.0	2.22	2 15.4	2.47	2.3
21	16 2.2	15 54.5	58 44.7	2.31	58 16.5	2.35	3 13.0	2.32	3.3
22	15 46.8	15 39.2	57 48.2	-2.35	57 20.2	-2.30	4 6.8	+2.16	4.3
23	15 31.8	15 24.8	56 53.1	2.20	56 27.3	2.08	4 56.7	2.01	5.3
24	15 18.2	15 12.2	56 3.2	1.93	55 41.0	1.76	5 43.4	1.89	6.3
25	15 6.7	15 1.8	55 20.9	-1.58	55 3.0	-1.39	6 27.6	+1.81	7.3
26	14 57.6	14 54.1	54 47.6	1.19	54 34.5	0.99	7 10.3	1.77	8.3
27	14 51.1	14 48.9	54 23.7	0.79	54 15.4	0.60	7 52.5	1.76	9.3
28	14 47.2	14 46.1	54 9.3	-0.42	54 5.3	-0.24	8 34.9	+1.79	10.3
29	14 45.6	14 45.6	54 3.4	-0.08	54 3.5	+0.08	9 18.4	1.84	11.3
30	14 46.1	14 47.1	54 5.4	+0.23	54 8.9	0.35	10 3.2	1.91	12.3
31	14 48.5	14 50.2	54 13.9	0.48	54 20.4	0.59	10 49.8	1.98	13.3
32	14 52.3	14 54.7	54 28.1	+0.69	54 36.9	+0.78	11 38.3	+2.05	14.3

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 1.					FRIDAY 3.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	12 53 31.34	1.8941	S. 9 9 38.7	9.432	0	14 26 45.88	1.9995	S. 15 47 36.4	6.911
1	12 55 25.03	1.8957	9 19 3.5	9.393	1	14 28 45.93	2.0022	15 54 29.0	6.843
2	12 57 18.82	1.8973	9 28 25.9	9.354	2	14 30 46.14	2.0048	16 1 17.5	6.774
3	12 59 12.70	1.8988	9 37 46.0	9.316	3	14 32 46.50	2.0074	16 8 1.9	6.705
4	13 1 6.68	1.9006	9 47 3.8	9.277	4	14 34 47.03	2.0101	16 14 42.1	6.635
5	13 3 0.77	1.9023	9 56 19.2	9.236	5	14 36 47.71	2.0127	16 21 18.1	6.565
6	13 4 54.96	1.9040	10 5 32.1	9.195	6	14 38 48.55	2.0153	16 27 49.9	6.495
7	13 6 49.25	1.9058	10 14 42.6	9.153	7	14 40 49.55	2.0179	16 34 17.5	6.423
8	13 8 43.66	1.9077	10 23 50.5	9.111	8	14 42 50.70	2.0206	16 40 40.7	6.351
9	13 10 38.17	1.9095	10 32 55.9	9.068	9	14 44 52.02	2.0233	16 46 59.6	6.279
10	13 12 32.80	1.9114	10 41 58.7	9.025	10	14 46 53.49	2.0258	16 53 14.2	6.206
11	13 14 27.54	1.9133	10 50 58.9	8.981	11	14 48 55.12	2.0285	16 59 24.3	6.132
12	13 16 22.39	1.9152	10 59 56.4	8.936	12	14 50 56.91	2.0312	17 5 30.0	6.057
13	13 18 17.36	1.9171	11 8 51.2	8.891	13	14 52 58.86	2.0338	17 11 31.2	5.982
14	13 20 12.44	1.9190	11 17 43.3	8.845	14	14 55 0.97	2.0365	17 17 27.9	5.907
15	13 22 7.64	1.9211	11 26 32.6	8.798	15	14 57 3.24	2.0392	17 23 20.1	5.832
16	13 24 2.97	1.9232	11 35 19.1	8.751	16	14 59 5.67	2.0418	17 29 7.7	5.755
17	13 25 58.42	1.9253	11 44 2.7	8.703	17	15 1 8.25	2.0443	17 34 50.7	5.677
18	13 27 54.00	1.9273	11 52 43.5	8.655	18	15 3 10.99	2.0470	17 40 29.0	5.600
19	13 29 49.70	1.9294	12 1 21.3	8.606	19	15 5 13.89	2.0496	17 46 2.7	5.522
20	13 31 45.53	1.9316	12 9 56.2	8.557	20	15 7 16.94	2.0522	17 51 31.6	5.443
21	13 33 41.49	1.9338	12 18 28.1	8.506	21	15 9 20.15	2.0548	17 56 55.8	5.363
22	13 35 37.58	1.9359	12 26 56.9	8.454	22	15 11 23.52	2.0574	18 2 15.2	5.283
23	13 37 33.80	1.9382	S. 12 35 22.6	8.402	23	15 13 27.04	2.0600	S. 18 7 29.8	5.202
THURSDAY 2.					SATURDAY 4.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	13 39 30.16	1.9404	S. 12 43 45.2	8.350	0	15 15 30.72	2.0626	S. 18 12 39.4	5.120
1	13 41 26.65	1.9427	12 52 4.6	8.298	1	15 17 34.55	2.0651	18 17 44.2	5.039
2	13 43 23.28	1.9450	13 0 20.9	8.244	2	15 19 38.53	2.0677	18 22 44.1	4.957
3	13 45 20.05	1.9473	13 8 33.9	8.190	3	15 21 42.67	2.0703	18 27 39.1	4.875
4	13 47 16.95	1.9495	13 16 43.7	8.136	4	15 23 46.96	2.0728	18 32 29.1	4.792
5	13 49 13.99	1.9519	13 24 50.2	8.080	5	15 25 51.40	2.0753	18 37 14.1	4.708
6	13 51 11.18	1.9543	13 32 53.3	8.024	6	15 27 55.99	2.0778	18 41 54.0	4.623
7	13 53 8.51	1.9568	13 40 53.1	7.968	7	15 30 0.73	2.0803	18 46 28.8	4.538
8	13 55 5.99	1.9592	13 48 49.5	7.911	8	15 32 5.62	2.0827	18 50 58.6	4.453
9	13 57 3.61	1.9615	13 56 42.4	7.853	9	15 34 10.65	2.0851	18 55 23.2	4.367
10	13 59 1.37	1.9639	14 4 31.8	7.794	10	15 36 15.83	2.0876	18 59 42.7	4.282
11	14 0 59.28	1.9664	14 12 17.7	7.735	11	15 38 21.16	2.0900	19 3 57.0	4.195
12	14 2 57.34	1.9689	14 20 0.0	7.675	12	15 40 26.63	2.0924	19 8 6.1	4.107
13	14 4 55.55	1.9714	14 27 38.7	7.615	13	15 42 32.25	2.0948	19 12 9.9	4.020
14	14 6 53.91	1.9739	14 35 13.8	7.554	14	15 44 38.01	2.0972	19 16 8.5	3.932
15	14 8 52.42	1.9764	14 42 45.2	7.493	15	15 46 43.91	2.0995	19 20 1.7	3.843
16	14 10 51.08	1.9789	14 50 12.9	7.430	16	15 48 49.95	2.1018	19 23 49.6	3.753
17	14 12 49.89	1.9814	14 57 36.8	7.367	17	15 50 56.13	2.1041	19 27 32.1	3.663
18	14 14 48.85	1.9840	15 4 57.0	7.304	18	15 53 2.44	2.1063	19 31 9.2	3.573
19	14 16 47.97	1.9866	15 12 13.3	7.240	19	15 55 8.89	2.1087	19 34 40.9	3.483
20	14 18 47.24	1.9892	15 19 25.8	7.176	20	15 57 15.48	2.1109	19 38 7.2	3.392
21	14 20 46.67	1.9918	15 26 34.4	7.110	21	15 59 22.20	2.1131	19 41 28.0	3.301
22	14 22 46.25	1.9943	15 33 39.0	7.044	22	16 1 29.05	2.1153	19 44 43.3	3.208
23	14 24 45.99	1.9959	15 40 39.7	6.978	23	16 3 36.03	2.1174	19 47 53.0	3.116
24	14 26 45.88	1.9995	S. 15 47 36.4	6.911	24	16 5 43.14	2.1196	S. 19 50 57.2	3.024

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 5.					TUESDAY 7.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	16 5 43.14	2.1196	S. 19 50 57.2	3.024	0	17 49 18.67	2.1834	S. 20 23 19.8	1.757
1	16 7 50.38	2.1217	19 53 55.9	2.931	1	17 51 29.69	2.1839	20 21 31.3	1.860
2	16 9 57.74	2.1237	19 56 48.9	2.837	2	17 53 40.74	2.1843	20 19 36.6	1.962
3	16 12 5.22	2.1258	19 59 36.3	2.743	3	17 55 51.81	2.1847	20 17 35.8	2.065
4	16 14 12.83	2.1278	20 2 18.1	2.649	4	17 58 2.90	2.1850	20 15 28.8	2.168
5	16 16 20.56	2.1298	20 4 54.2	2.554	5	18 0 14.01	2.1853	20 13 15.6	2.272
6	16 18 28.41	2.1318	20 7 24.6	2.459	6	18 2 25.14	2.1857	20 10 56.2	2.374
7	16 20 36.37	2.1337	20 9 49.3	2.364	7	18 4 36.29	2.1859	20 8 30.7	2.477
8	16 22 44.45	2.1356	20 12 8.3	2.268	8	18 6 47.45	2.1861	20 5 59.0	2.580
9	16 24 52.64	2.1374	20 14 21.5	2.172	9	18 8 58.62	2.1863	20 3 21.1	2.682
10	16 27 0.94	2.1393	20 16 29.0	2.077	10	18 11 9.81	2.1865	20 0 37.1	2.784
11	16 29 9.35	2.1411	20 18 30.7	1.979	11	18 13 21.00	2.1866	19 57 47.0	2.887
12	16 31 17.87	2.1429	20 20 26.5	1.882	12	18 15 32.20	2.1867	19 54 50.7	2.989
13	16 33 26.50	2.1447	20 22 16.5	1.785	13	18 17 43.40	2.1868	19 51 48.3	3.092
14	16 35 35.23	2.1463	20 24 0.7	1.687	14	18 19 54.61	2.1868	19 48 39.7	3.194
15	16 37 44.06	2.1480	20 25 39.0	1.589	15	18 22 5.82	2.1868	19 45 25.0	3.295
16	16 39 52.99	2.1497	20 27 11.4	1.491	16	18 24 17.03	2.1868	19 42 4.3	3.397
17	16 42 2.02	2.1513	20 28 37.9	1.392	17	18 26 28.23	2.1867	19 38 37.4	3.499
18	16 44 11.14	2.1528	20 29 58.4	1.292	18	18 28 39.43	2.1866	19 35 4.4	3.601
19	16 46 20.36	2.1543	20 31 13.0	1.194	19	18 30 50.62	2.1865	19 31 25.3	3.702
20	16 48 29.66	2.1558	20 32 21.7	1.095	20	18 33 1.81	2.1864	19 27 40.2	3.802
21	16 50 39.06	2.1574	20 33 24.4	0.996	21	18 35 12.99	2.1863	19 23 49.0	3.903
22	16 52 48.55	2.1588	20 34 21.2	0.896	22	18 37 24.16	2.1861	19 19 51.8	4.004
23	16 54 58.12	2.1602	S. 20 35 11.9	0.795	23	18 39 35.32	2.1858	S. 19 15 48.5	4.105
MONDAY 6.					WEDNESDAY 8.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	16 57 7.77	2.1616	S. 20 35 56.6	0.695	0	18 41 46.46	2.1856	S. 19 11 39.2	4.205
1	16 59 17.51	2.1629	20 36 35.3	0.594	1	18 43 57.59	2.1853	19 7 23.9	4.305
2	17 1 27.32	2.1642	20 37 7.9	0.493	2	18 46 8.70	2.1851	19 3 2.6	4.405
3	17 3 37.21	2.1654	20 37 34.5	0.393	3	18 48 19.80	2.1848	18 58 35.3	4.505
4	17 5 47.17	2.1667	20 37 55.1	0.292	4	18 50 30.87	2.1844	18 54 2.0	4.605
5	17 7 57.21	2.1679	20 38 9.6	0.190	5	18 52 41.93	2.1842	18 49 22.7	4.703
6	17 10 7.32	2.1690	20 38 17.9	-0.088	6	18 54 52.97	2.1838	18 44 37.6	4.802
7	17 12 17.49	2.1701	20 38 20.2	+0.013	7	18 57 3.98	2.1833	18 39 46.5	4.901
8	17 14 27.73	2.1712	20 38 16.4	0.114	8	18 59 14.97	2.1829	18 34 49.5	4.999
9	17 16 38.03	2.1722	20 38 6.5	0.216	9	19 1 25.93	2.1825	18 29 46.6	5.098
10	17 18 48.39	2.1732	20 37 50.5	0.318	10	19 3 36.87	2.1821	18 24 37.8	5.195
11	17 20 58.81	2.1742	20 37 28.3	0.422	11	19 5 47.78	2.1817	18 19 23.2	5.292
12	17 23 9.29	2.1751	20 36 59.9	0.523	12	19 7 58.67	2.1813	18 14 2.7	5.390
13	17 25 19.82	2.1760	20 36 25.5	0.625	13	19 10 9.53	2.1808	18 8 36.4	5.487
14	17 27 30.41	2.1768	20 35 44.9	0.728	14	19 12 20.36	2.1802	18 3 4.3	5.583
15	17 29 41.04	2.1777	20 34 58.1	0.831	15	19 14 31.15	2.1797	17 57 26.5	5.678
16	17 31 51.73	2.1785	20 34 5.2	0.933	16	19 16 41.92	2.1793	17 51 42.9	5.775
17	17 34 2.46	2.1792	20 33 6.2	1.035	17	19 18 52.66	2.1787	17 45 53.5	5.870
18	17 36 13.23	2.1799	20 32 1.0	1.138	18	19 21 3.36	2.1781	17 39 58.5	5.964
19	17 38 24.05	2.1807	20 30 49.6	1.242	19	19 23 14.03	2.1776	17 33 57.8	6.059
20	17 40 34.91	2.1813	20 29 32.0	1.344	20	19 25 24.67	2.1770	17 27 51.4	6.154
21	17 42 45.80	2.1818	20 28 8.3	1.447	21	19 27 35.27	2.1764	17 21 39.3	6.248
22	17 44 56.72	2.1823	20 26 38.3	1.551	22	19 29 45.84	2.1759	17 15 21.6	6.342
23	17 47 7.68	2.1829	20 25 2.2	1.654	23	19 31 56.38	2.1753	17 8 58.3	6.435
24	17 49 18.67	2.1834	S. 20 23 19.8	1.757	24	19 34 6.87	2.1746	S. 17 2 29.4	6.528

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 9.					SATURDAY 11.				
0	19 34 6.87	2.1746	S. 17 2 29.4	6.528	0	21 17 54.77	2.1561	S. 10 11 39.2	10.369
1	19 35 17.33	2.1741	16 55 55.0	6.620	1	21 20 4.14	2.1563	10 1 15.1	10.433
2	19 38 27.76	2.1735	16 49 15.0	6.712	2	21 22 13.53	2.1566	9 50 47.2	10.497
3	19 40 38.15	2.1728	16 42 29.6	6.803	3	21 24 22.93	2.1568	9 40 15.4	10.561
4	19 42 48.50	2.1723	16 35 38.6	6.895	4	21 26 32.35	2.1571	9 29 39.9	10.623
5	19 44 58.82	2.1717	16 28 42.2	6.985	5	21 28 41.78	2.1573	9 19 0.6	10.685
6	19 47 9.19	2.1710	16 21 40.4	7.076	6	21 30 51.23	2.1577	9 8 17.7	10.745
7	19 49 19.34	2.1704	16 14 33.1	7.166	7	21 33 0.70	2.1580	8 57 31.2	10.805
8	19 51 29.55	2.1698	16 7 20.5	7.254	8	21 35 10.19	2.1584	8 46 41.1	10.864
9	19 53 39.72	2.1692	16 0 2.6	7.343	9	21 37 19.71	2.1589	8 35 47.5	10.922
10	19 55 49.85	2.1686	15 52 39.3	7.432	10	21 39 29.26	2.1593	8 24 50.4	10.980
11	19 57 59.95	2.1681	15 45 10.8	7.518	11	21 41 38.83	2.1598	8 13 49.9	11.037
12	20 0 10.02	2.1675	15 37 37.1	7.606	12	21 43 48.44	2.1605	8 2 46.0	11.093
13	20 2 20.05	2.1668	15 29 58.1	7.693	13	21 45 58.09	2.1611	7 51 38.8	11.148
14	20 4 30.04	2.1663	15 22 13.9	7.779	14	21 48 7.77	2.1617	7 40 28.3	11.202
15	20 6 40.00	2.1657	15 14 24.6	7.865	15	21 50 17.49	2.1624	7 29 14.6	11.255
16	20 8 49.92	2.1651	15 6 30.1	7.951	16	21 52 27.26	2.1632	7 17 57.7	11.307
17	20 10 59.81	2.1646	14 58 30.5	8.036	17	21 54 37.07	2.1639	7 6 37.7	11.359
18	20 13 9.67	2.1640	14 50 25.8	8.120	18	21 56 46.93	2.1648	6 55 14.6	11.411
19	20 15 19.49	2.1635	14 42 16.1	8.203	19	21 58 56.84	2.1657	6 43 48.4	11.461
20	20 17 29.29	2.1630	14 34 1.4	8.287	20	22 1 6.81	2.1666	6 32 19.3	11.509
21	20 19 39.05	2.1624	14 25 41.7	8.369	21	22 3 16.83	2.1675	6 20 47.3	11.557
22	20 21 48.78	2.1619	14 17 17.1	8.452	22	22 5 26.91	2.1685	6 9 12.5	11.604
23	20 23 58.48	2.1614	S. 14 8 47.5	8.533	23	22 7 37.05	2.1695	S. 5 57 34.8	11.652
FRIDAY 10.					SUNDAY 12.				
0	20 26 8.15	2.1609	S. 14 0 13.1	8.613	0	22 9 47.25	2.1707	S. 5 45 54.3	11.697
1	20 28 17.79	2.1605	13 51 33.9	8.694	1	22 11 57.53	2.1718	5 34 11.2	11.741
2	20 30 27.41	2.1601	13 42 49.8	8.775	2	22 14 7.87	2.1730	5 22 25.4	11.784
3	20 32 37.00	2.1597	13 34 0.9	8.854	3	22 16 18.29	2.1743	5 10 37.1	11.827
4	20 34 46.57	2.1593	13 25 7.3	8.933	4	22 18 28.78	2.1755	4 58 46.2	11.868
5	20 36 56.11	2.1589	13 16 9.0	9.010	5	22 20 39.35	2.1768	4 46 52.9	11.908
6	20 39 5.64	2.1586	13 7 6.1	9.087	6	22 22 50.00	2.1782	4 34 57.2	11.948
7	20 41 15.14	2.1581	12 57 58.5	9.165	7	22 25 0.74	2.1797	4 22 59.1	11.987
8	20 43 24.61	2.1578	12 48 46.3	9.241	8	22 27 11.56	2.1812	4 10 58.7	12.025
9	20 45 34.07	2.1576	12 39 29.6	9.316	9	22 29 22.48	2.1828	3 58 56.1	12.062
10	20 47 43.52	2.1573	12 30 8.4	9.391	10	22 31 33.49	2.1843	3 46 51.3	12.097
11	20 49 52.95	2.1570	12 20 42.7	9.466	11	22 33 44.60	2.1859	3 34 44.5	12.131
12	20 52 2.36	2.1568	12 11 12.5	9.540	12	22 35 55.80	2.1876	3 22 35.6	12.165
13	20 54 11.76	2.1566	12 1 37.9	9.613	13	22 38 7.11	2.1893	3 10 24.7	12.197
14	20 56 21.15	2.1564	11 51 59.0	9.684	14	22 40 18.52	2.1911	2 58 11.9	12.229
15	20 58 30.53	2.1563	11 42 15.8	9.756	15	22 42 30.04	2.1930	2 45 57.2	12.259
16	21 0 39.90	2.1561	11 32 28.3	9.827	16	22 44 41.68	2.1949	2 33 40.8	12.288
17	21 2 49.26	2.1560	11 22 36.5	9.898	17	22 46 53.43	2.1968	2 21 22.6	12.317
18	21 4 58.62	2.1559	11 12 40.6	9.967	18	22 49 5.29	2.1988	2 9 2.8	12.343
19	21 7 7.97	2.1559	11 2 40.5	10.036	19	22 51 17.28	2.2008	1 56 41.4	12.369
20	21 9 17.33	2.1560	10 52 36.3	10.104	20	22 53 29.39	2.2029	1 44 18.5	12.394
21	21 11 26.69	2.1560	10 42 28.0	10.172	21	22 55 41.63	2.2051	1 31 54.1	12.418
22	21 13 36.05	2.1560	10 32 15.7	10.238	22	22 57 54.00	2.2073	1 19 28.3	12.441
23	21 15 45.41	2.1560	10 21 59.4	10.304	23	23 0 6.50	2.2095	1 7 1.2	12.462
24	21 17 54.77	2.1561	S. 10 11 39.2	10.369	24	23 2 19.14	2.2118	S. 0 54 32.8	12.482

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 13.					WEDNESDAY 15.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	23 2 19.14	2.2118	S. 0 54 32.8	12.482	0	52 5.37	2.3790	N. 9 3 15.2	11.877
1	23 4 31.92	2.2142	0 42 3.3	12.501	1	54 28.24	2.3834	9 15 6.4	11.828
2	23 6 44.84	2.2166	0 29 32.7	12.519	2	56 51.38	2.3879	9 26 54.6	11.777
3	23 8 57.91	2.2191	0 17 1.0	12.536	3	59 14.79	2.3924	9 38 39.7	11.724
4	23 11 11.13	2.2216	S. 0 4 28.4	12.552	4	1 38.47	2.3968	9 50 21.5	11.670
5	23 13 24.50	2.2241	N. 0 8 5.2	12.566	5	1 4 2.41	2.4013	10 2 0.1	11.614
6	23 15 38.02	2.2267	0 20 39.5	12.578	6	1 6 26.63	2.4058	10 13 35.2	11.556
7	23 17 51.70	2.2294	0 33 14.6	12.590	7	1 8 51.11	2.4103	10 25 6.8	11.497
8	23 20 5.55	2.2322	0 45 50.3	12.601	8	1 11 15.87	2.4149	10 36 34.8	11.437
9	23 22 19.56	2.2349	0 58 26.7	12.611	9	1 13 40.90	2.4194	10 47 59.2	11.374
10	23 24 33.74	2.2378	1 11 3.6	12.619	10	1 16 6.20	2.4240	10 59 19.7	11.309
11	23 26 48.09	2.2407	1 23 41.0	12.626	11	1 18 31.78	2.4286	11 10 36.3	11.242
12	23 29 2.62	2.2436	1 36 18.7	12.631	12	1 20 57.63	2.4332	11 21 48.8	11.175
13	23 31 17.32	2.2465	1 48 56.7	12.635	13	1 23 23.76	2.4378	11 32 57.3	11.106
14	23 33 32.20	2.2496	2 1 34.9	12.638	14	1 25 50.16	2.4423	11 44 1.5	11.035
15	23 35 47.27	2.2527	2 14 13.2	12.639	15	1 28 16.84	2.4469	11 55 1.5	10.962
16	23 38 2.52	2.2558	2 26 51.6	12.639	16	1 30 43.79	2.4515	12 5 57.0	10.888
17	23 40 17.96	2.2589	2 39 29.9	12.638	17	1 33 11.02	2.4561	12 16 48.1	10.813
18	23 42 33.59	2.2622	2 52 8.2	12.636	18	1 35 38.52	2.4606	12 27 34.6	10.735
19	23 44 49.42	2.2654	3 4 46.2	12.632	19	1 38 6.29	2.4652	12 38 16.3	10.656
20	23 47 5.44	2.2688	3 17 24.0	12.627	20	1 40 34.34	2.4698	12 48 53.3	10.576
21	23 49 21.67	2.2722	3 30 1.4	12.619	21	1 43 2.66	2.4743	12 59 25.4	10.493
22	23 51 38.10	2.2756	3 42 38.3	12.611	22	1 45 31.25	2.4788	13 9 52.5	10.409
23	23 53 54.74	2.2791	N. 3 55 14.7	12.602	23	1 48 0.12	2.4834	N. 13 20 14.5	10.323
TUESDAY 14.					THURSDAY 16.				
0	23 56 11.59	2.2826	N. 4 7 50.6	12.592	0	1 50 29.26	2.4879	N. 13 30 31.2	10.235
1	23 58 28.65	2.2862	4 20 25.7	12.578	1	1 52 58.67	2.4923	13 40 42.7	10.147
2	0 0 45.93	2.2897	4 33 0.0	12.565	2	1 55 28.34	2.4968	13 50 48.8	10.057
3	0 3 3.42	2.2933	4 45 33.5	12.550	3	1 57 58.28	2.5013	14 0 49.5	9.965
4	0 5 21.13	2.2971	4 58 6.0	12.533	4	2 0 28.49	2.5057	14 10 44.6	9.871
5	0 7 39.07	2.3008	5 10 37.5	12.515	5	2 2 58.96	2.5101	14 20 34.0	9.775
6	0 9 57.23	2.3046	5 23 7.8	12.495	6	2 5 29.70	2.5145	14 30 17.6	9.677
7	0 12 15.62	2.3084	5 35 36.9	12.474	7	2 8 0.70	2.5188	14 39 55.3	9.579
8	0 14 34.24	2.3123	5 48 4.7	12.452	8	2 10 31.95	2.5230	14 49 27.1	9.479
9	0 16 53.09	2.3162	6 0 31.1	12.428	9	2 13 3.46	2.5273	14 58 52.8	9.378
10	0 19 12.18	2.3202	6 12 56.0	12.402	10	2 15 35.22	2.5314	15 8 12.4	9.275
11	0 21 31.51	2.3241	6 25 19.3	12.374	11	2 18 7.23	2.5356	15 17 25.8	9.171
12	0 23 51.07	2.3281	6 37 40.9	12.346	12	2 20 39.49	2.5398	15 26 32.9	9.065
13	0 26 10.88	2.3322	6 50 0.8	12.316	13	2 23 12.00	2.5438	15 35 33.6	8.957
14	0 28 30.93	2.3363	7 2 18.8	12.283	14	2 25 44.75	2.5478	15 44 27.7	8.847
15	0 30 51.23	2.3404	7 14 34.8	12.250	15	2 28 17.74	2.5518	15 53 15.2	8.736
16	0 33 11.78	2.3447	7 26 48.8	12.215	16	2 30 50.97	2.5558	16 1 56.0	8.624
17	0 35 32.59	2.3488	7 39 0.6	12.178	17	2 33 24.43	2.5597	16 10 30.1	8.511
18	0 37 53.64	2.3530	7 51 10.2	12.140	18	2 35 58.13	2.5635	16 18 57.3	8.396
19	0 40 14.95	2.3573	8 3 17.4	12.100	19	2 38 32.05	2.5673	16 27 17.6	8.280
20	0 42 36.51	2.3616	8 15 22.2	12.059	20	2 41 6.20	2.5709	16 35 30.9	8.162
21	0 44 58.34	2.3659	8 27 24.5	12.017	21	2 43 40.56	2.5745	16 43 37.1	8.043
22	0 47 20.42	2.3702	8 39 24.2	11.972	22	2 46 15.14	2.5781	16 51 36.1	7.923
23	0 49 42.76	2.3746	8 51 21.1	11.925	23	2 48 49.93	2.5815	16 59 27.9	7.802
24	0 52 5.37	2.3790	N. 9 3 15.2	11.877	24	2 51 24.92	2.5849	N. 17 7 12.3	7.679

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 17.					SUNDAY 19.				
	h m s		° ' "	"		h m s		° ' "	"
0	2 51 24.92	2.5849	N.17 7 12.3	7.679	0	4 57 36.22	2.6291	N.20 36 14.8	0.818
1	2 54 0.12	2.5883	17 14 49.4	7.555	1	5 0 13.91	2.6272	20 36 59.4	0.668
2	2 56 35.52	2.5917	17 22 18.9	7.429	2	5 2 51.48	2.6250	20 37 35.0	0.519
3	2 59 11.12	2.5948	17 29 40.9	7.302	3	5 5 28.91	2.6227	20 38 1.7	0.370
4	3 1 46.90	2.5979	17 36 55.2	7.174	4	5 8 6.20	2.6203	20 38 19.4	0.221
5	3 4 22.87	2.6009	17 44 1.8	7.046	5	5 10 43.35	2.6179	20 38 28.2	0.073
6	3 6 59.01	2.6038	17 51 0.7	6.916	6	5 13 20.35	2.6153	20 38 28.1	0.075
7	3 9 35.33	2.6067	17 57 51.7	6.784	7	5 15 57.18	2.6124	20 38 19.2	0.222
8	3 12 11.82	2.6095	18 4 34.8	6.652	8	5 18 33.84	2.6096	20 38 1.5	0.368
9	3 14 48.47	2.6122	18 11 9.9	6.518	9	5 21 10.33	2.6067	20 37 35.0	0.515
10	3 17 25.28	2.6148	18 17 37.0	6.384	10	5 23 46.64	2.6036	20 36 59.7	0.661
11	3 20 2.24	2.6172	18 23 56.0	6.249	11	5 26 22.76	2.6003	20 36 15.7	0.806
12	3 22 39.34	2.6196	18 30 6.9	6.112	12	5 28 58.68	2.5970	20 35 23.0	0.950
13	3 25 16.59	2.6219	18 36 9.5	5.975	13	5 31 34.40	2.5937	20 34 21.7	1.094
14	3 27 53.97	2.6241	18 42 3.9	5.837	14	5 34 9.92	2.5902	20 33 11.7	1.238
15	3 30 31.48	2.6262	18 47 49.9	5.697	15	5 36 45.22	2.5865	20 31 53.1	1.381
16	3 33 9.11	2.6281	18 53 27.5	5.557	16	5 39 20.30	2.5828	20 30 26.0	1.522
17	3 35 46.85	2.6299	18 58 56.7	5.416	17	5 41 55.15	2.5789	20 28 50.5	1.662
18	3 38 24.70	2.6317	19 4 17.4	5.274	18	5 44 29.77	2.5750	20 27 6.5	1.803
19	3 41 2.66	2.6334	19 9 29.6	5.132	19	5 47 4.15	2.5709	20 25 14.1	1.943
20	3 43 40.71	2.6349	19 14 33.2	4.988	20	5 49 38.28	2.5668	20 23 13.3	2.082
21	3 46 18.85	2.6364	19 19 28.2	4.845	21	5 52 12.17	2.5627	20 21 4.2	2.220
22	3 48 57.08	2.6377	19 24 14.6	4.701	22	5 54 45.80	2.5583	20 18 46.9	2.357
23	3 51 35.38	2.6389	N.19 28 52.3	4.555	23	5 57 19.16	2.5538	N.20 16 21.4	2.493
SATURDAY 18.					MONDAY 20.				
	h m s		° ' "	"		h m s		° ' "	"
0	3 54 13.75	2.6400	N.19 33 21.2	4.409	0	5 59 52.25	2.5493	N.20 13 47.8	2.627
1	3 56 52.18	2.6410	19 37 41.4	4.262	1	6 2 25.07	2.5448	20 11 6.1	2.762
2	3 59 30.67	2.6418	19 41 52.7	4.115	2	6 4 57.62	2.5401	20 8 16.3	2.896
3	4 2 9.20	2.6425	19 45 55.2	3.967	3	6 7 29.88	2.5353	20 5 18.6	3.028
4	4 4 47.77	2.6432	19 49 48.8	3.820	4	6 10 1.86	2.5305	20 2 13.0	3.159
5	4 7 26.38	2.6437	19 53 33.6	3.672	5	6 12 33.54	2.5255	19 58 59.5	3.289
6	4 10 5.01	2.6440	19 57 9.5	3.523	6	6 15 4.92	2.5205	19 55 38.3	3.418
7	4 12 43.66	2.6443	20 0 36.4	3.373	7	6 17 36.00	2.5155	19 52 9.3	3.547
8	4 15 22.32	2.6443	20 3 54.3	3.224	8	6 20 6.78	2.5103	19 48 32.6	3.675
9	4 18 0.98	2.6443	20 7 3.3	3.075	9	6 22 37.24	2.5051	19 44 48.3	3.801
10	4 20 39.64	2.6443	20 10 3.3	2.925	10	6 25 7.39	2.4998	19 40 56.5	3.926
11	4 23 18.29	2.6440	20 12 54.3	2.775	11	6 27 37.22	2.4945	19 36 57.2	4.051
12	4 25 56.92	2.6436	20 15 36.3	2.624	12	6 30 6.73	2.4891	19 32 50.4	4.173
13	4 28 35.52	2.6431	20 18 9.2	2.473	13	6 32 35.91	2.4836	19 28 36.4	4.294
14	4 31 14.09	2.6425	20 20 33.1	2.323	14	6 35 4.76	2.4781	19 24 15.1	4.415
15	4 33 52.62	2.6417	20 22 48.0	2.172	15	6 37 33.28	2.4725	19 19 46.6	4.534
16	4 36 31.10	2.6408	20 24 53.8	2.021	16	6 40 1.46	2.4668	19 15 11.0	4.653
17	4 39 9.52	2.6398	20 26 50.5	1.870	17	6 42 29.30	2.4612	19 10 28.3	4.770
18	4 41 47.88	2.6387	20 28 38.2	1.720	18	6 44 56.80	2.4555	19 5 38.6	4.886
19	4 44 26.16	2.6373	20 30 16.9	1.569	19	6 47 23.96	2.4497	19 0 42.0	5.001
20	4 47 4.36	2.6360	20 31 46.5	1.418	20	6 49 50.76	2.4438	18 55 38.5	5.114
21	4 49 42.48	2.6345	20 33 7.1	1.268	21	6 52 17.22	2.4380	18 50 28.3	5.226
22	4 52 20.50	2.6328	20 34 18.7	1.118	22	6 54 43.32	2.4321	18 45 11.4	5.337
23	4 54 58.42	2.6310	20 35 21.2	0.968	23	6 57 9.07	2.4261	18 39 47.8	5.448
24	4 57 36.22	2.6291	N.20 36 14.8	0.818	24	6 59 34.45	2.4201	N.18 34 17.6	5.557

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 21.					THURSDAY 23.				
0	h m s	s	N. 18 34 17.6	5.557	0	h m s	s	N. 12 26 18.0	9.308
1	6 59 34.45	2.4201	18 28 41.0	5.662	1	8 48 41.53	2.1316	12 16 58.0	9.358
2	7 1 59.48	2.4142	18 22 58.1	5.768	2	8 50 49.26	2.1262	12 7 35.0	9.407
3	7 4 24.15	2.4081	18 17 8.8	5.874	3	8 52 56.67	2.1208	11 58 9.2	9.454
4	7 6 48.45	2.4020	18 11 13.2	5.978	4	8 55 3.76	2.1155	11 48 40.5	9.501
5	7 9 12.39	2.3959	18 5 11.5	6.080	5	8 57 10.53	2.1103	11 39 9.1	9.546
6	7 11 35.96	2.3898	17 59 3.6	6.182	6	8 59 16.99	2.1050	11 29 35.0	9.590
7	7 13 59.17	2.3837	17 52 49.7	6.281	7	9 1 23.13	2.0998	11 19 58.3	9.633
8	7 16 22.00	2.3775	17 46 29.9	6.379	8	9 3 28.97	2.0948	11 10 19.0	9.676
9	7 18 44.47	2.3714	17 40 4.2	6.477	9	9 5 34.51	2.0898	11 0 37.2	9.718
10	7 21 6.57	2.3652	17 33 32.7	6.573	10	9 7 39.74	2.0847	10 50 52.9	9.758
11	7 23 28.29	2.3590	17 26 55.5	6.667	11	9 9 44.67	2.0798	10 41 6.3	9.796
12	7 25 49.65	2.3528	17 20 12.6	6.761	12	9 11 49.31	2.0748	10 31 17.4	9.834
13	7 28 10.63	2.3465	17 13 24.2	6.853	13	9 13 53.65	2.0699	10 21 26.2	9.872
14	7 30 31.23	2.3403	17 6 30.3	6.944	14	9 15 57.70	2.0652	10 11 32.8	9.908
15	7 32 51.46	2.3341	16 59 30.9	7.034	15	9 18 1.47	2.0605	10 1 37.2	9.944
16	7 35 11.32	2.3279	16 52 26.2	7.122	16	9 20 4.96	2.0558	9 51 39.5	9.979
17	7 37 30.81	2.3217	16 45 16.2	7.209	17	9 22 8.17	2.0512	9 41 39.7	10.013
18	7 39 49.92	2.3153	16 38 1.1	7.295	18	9 24 11.10	2.0465	9 31 38.0	10.045
19	7 42 8.65	2.3091	16 30 40.8	7.380	19	9 26 13.75	2.0420	9 21 34.3	10.077
20	7 44 27.01	2.3029	16 23 15.5	7.463	20	9 28 16.14	2.0376	9 11 28.8	10.107
21	7 46 45.00	2.2968	16 15 45.2	7.545	21	9 30 18.26	2.0332	8 51 21.4	10.167
22	7 49 2.62	2.2905	16 8 10.1	7.626	22	9 32 20.12	2.0288	8 41 1.3	10.195
23	7 51 19.86	2.2842	N. 16 0 30.1	7.706	23	9 34 21.71	2.0244		
24	7 53 36.73	2.2781			24	9 36 23.05	2.0202		
WEDNESDAY 22.					FRIDAY 24.				
0	h m s	s	N. 15 52 45.4	7.784	0	h m s	s	N. 8 30 48.8	10.222
1	7 55 53.23	2.2719	15 44 56.0	7.862	1	9 38 24.14	2.0161	8 20 34.6	10.249
2	7 58 9.36	2.2658	15 37 2.0	7.938	2	9 40 24.98	2.0119	8 10 18.9	10.274
3	8 0 25.12	2.2596	15 29 3.5	8.012	3	9 42 25.57	2.0078	8 0 1.7	10.299
4	8 2 40.51	2.2535	15 21 0.6	8.085	4	9 44 25.92	2.0038	7 49 43.0	10.323
5	8 4 55.54	2.2474	15 12 53.3	8.158	5	9 46 26.03	1.9998	7 39 22.9	10.347
6	8 7 10.20	2.2413	15 4 41.7	8.229	6	9 48 25.90	1.9959	7 29 1.4	10.369
7	8 9 24.50	2.2353	14 56 25.8	8.299	7	9 50 25.54	1.9921	7 18 38.6	10.390
8	8 11 38.43	2.2292	14 48 5.8	8.368	8	9 52 24.95	1.9883	7 8 14.6	10.411
9	8 13 52.00	2.2232	14 39 41.7	8.435	9	9 54 24.14	1.9847	6 57 49.3	10.431
10	8 16 5.21	2.2173	14 31 13.6	8.501	10	9 56 23.11	1.9810	6 47 22.9	10.450
11	8 18 18.07	2.2113	14 22 41.6	8.566	11	9 58 21.86	1.9773	6 36 55.3	10.469
12	8 20 30.57	2.2053	14 14 5.7	8.630	12	10 0 20.39	1.9738	6 26 26.6	10.487
13	8 22 42.71	2.1994	13 56 42.6	8.693	13	10 2 18.71	1.9703	6 15 56.9	10.503
14	8 24 54.50	2.1936	13 47 55.5	8.754	14	10 4 16.83	1.9669	6 5 26.3	10.518
15	8 27 5.94	2.1878	13 39 4.8	8.815	15	10 6 14.74	1.9635	5 54 54.7	10.548
16	8 29 17.03	2.1819	13 30 10.6	8.874	16	10 8 12.45	1.9602	5 44 22.2	10.562
17	8 31 27.77	2.1762	13 21 12.9	8.932	17	10 10 9.96	1.9569	5 33 14.7	10.576
18	8 33 38.17	2.1705	13 12 11.9	8.989	18	10 12 7.28	1.9538	5 23 13.6	10.588
19	8 35 48.23	2.1648	13 3 7.5	9.045	19	10 14 4.41	1.9507	5 12 4.2	10.598
20	8 37 57.95	2.1592	12 53 59.9	9.100	20	10 16 1.36	1.9476	4 51 28.0	10.609
21	8 40 7.33	2.1536	12 44 49.0	9.154	21	10 17 58.12	1.9446	4 40 51.1	10.620
22	8 42 16.38	2.1480	12 35 35.0	9.207	22	10 19 54.71	1.9417	4 30 13.6	10.630
23	8 44 25.09	2.1424	N. 12 26 18.0	9.258	23	10 21 51.12	1.9388		
24	8 46 33.47	2.1370		9.308	24	10 23 47.36	1.9359		
	8 48 41.53	2.1316				10 25 43.43	1.9332		

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 25.					MONDAY 27.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	10 25 43.43	1.9332	N. 4 19 35.5	10.638	0	11 56 28.04	1.8699	S. 4 8 49.1	10.314
1	10 27 39.34	1.9305	4 8 57.0	10.646	1	11 58 20.24	1.8700	4 19 7.3	10.292
2	10 29 35.09	1.9279	3 58 18.0	10.654	2	12 0 12.44	1.8700	4 29 24.2	10.271
3	10 31 30.69	1.9253	3 47 38.5	10.661	3	12 2 4.64	1.8702	4 39 39.8	10.248
4	10 33 26.13	1.9228	3 36 58.7	10.666	4	12 3 56.86	1.8704	4 49 54.0	10.226
5	10 35 21.42	1.9203	3 26 18.6	10.671	5	12 5 49.09	1.8707	5 0 6.9	10.203
6	10 37 16.57	1.9179	3 15 38.2	10.676	6	12 7 41.34	1.8710	5 10 18.4	10.179
7	10 39 11.57	1.9156	3 4 57.5	10.680	7	12 9 33.61	1.8714	5 20 28.4	10.151
8	10 41 6.44	1.9133	2 54 16.6	10.683	8	12 11 25.91	1.8718	5 30 36.9	10.129
9	10 43 1.17	1.9111	2 43 35.5	10.687	9	12 13 18.23	1.8722	5 40 43.9	10.103
10	10 44 55.77	1.9089	2 32 54.2	10.688	10	12 15 10.57	1.8727	5 50 49.3	10.077
11	10 46 50.24	1.9068	2 22 12.9	10.689	11	12 17 2.95	1.8733	6 0 53.2	10.051
12	10 48 44.59	1.9048	2 11 31.5	10.690	12	12 18 55.36	1.8738	6 10 55.4	10.023
13	10 50 38.82	1.9028	2 0 50.1	10.690	13	12 20 47.81	1.8745	6 20 56.0	9.996
14	10 52 32.93	1.9009	1 50 8.7	10.689	14	12 22 40.30	1.8753	6 30 54.9	9.967
15	10 54 26.93	1.8990	1 39 27.4	10.687	15	12 24 32.84	1.8760	6 40 52.1	9.938
16	10 56 20.81	1.8972	1 28 46.2	10.686	16	12 26 25.42	1.8768	6 50 47.5	9.909
17	10 58 14.59	1.8955	1 18 5.1	10.684	17	12 28 18.05	1.8777	7 0 41.2	9.879
18	11 0 8.27	1.8938	1 7 24.1	10.682	18	12 30 10.74	1.8786	7 10 33.0	9.848
19	11 2 1.85	1.8923	0 56 43.3	10.678	19	12 32 3.48	1.8794	7 20 23.0	9.817
20	11 3 55.34	1.8907	0 46 2.8	10.673	20	12 33 56.27	1.8804	7 30 11.1	9.786
21	11 5 48.73	1.8891	0 35 22.6	10.667	21	12 35 49.13	1.8815	7 39 57.3	9.755
22	11 7 42.03	1.8877	0 24 42.7	10.662	22	12 37 42.05	1.8825	7 49 41.5	9.720
23	11 9 35.25	1.8863	N. 0 14 3.1	10.657	23	12 39 35.03	1.8836	S. 7 59 23.7	9.687
SUNDAY 26.					TUESDAY 28.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	11 11 28.38	1.8849	N. 0 3 23.9	10.649	0	12 41 28.08	1.8848	S. 8 9 3.9	9.653
1	11 13 21.44	1.8837	S. 0 7 14.8	10.642	1	12 43 21.21	1.8861	8 18 42.1	9.619
2	11 15 14.42	1.8824	0 17 53.1	10.634	2	12 45 14.41	1.8873	8 28 18.2	9.583
3	11 17 7.33	1.8813	0 28 30.9	10.626	3	12 47 7.68	1.8886	8 37 52.1	9.547
4	11 19 0.18	1.8803	0 39 8.2	10.617	4	12 49 1.04	1.8900	8 47 23.9	9.512
5	11 20 52.96	1.8792	0 49 44.9	10.607	5	12 50 54.48	1.8913	8 56 53.5	9.475
6	11 22 45.68	1.8782	1 0 21.0	10.596	6	12 52 48.00	1.8928	9 6 20.9	9.437
7	11 24 38.34	1.8772	1 10 56.4	10.585	7	12 54 41.61	1.8942	9 15 46.0	9.399
8	11 26 30.94	1.8763	1 21 31.2	10.574	8	12 56 35.30	1.8957	9 25 8.8	9.361
9	11 28 23.50	1.8756	1 32 5.3	10.562	9	12 58 29.09	1.8972	9 34 29.3	9.322
10	11 30 16.01	1.8748	1 42 38.7	10.550	10	13 0 22.96	1.8988	9 43 47.4	9.282
11	11 32 8.47	1.8741	1 53 11.3	10.537	11	13 2 16.94	1.9004	9 53 3.1	9.242
12	11 34 0.90	1.8735	2 3 43.1	10.523	12	13 4 11.01	1.9020	10 2 16.4	9.201
13	11 35 53.29	1.8728	2 14 14.0	10.508	13	13 6 5.18	1.9038	10 11 27.2	9.159
14	11 37 45.64	1.8723	2 24 44.1	10.494	14	13 7 59.46	1.9056	10 20 35.5	9.117
15	11 39 37.96	1.8718	2 35 13.3	10.478	15	13 9 53.85	1.9073	10 29 41.3	9.075
16	11 41 30.26	1.8714	2 45 41.5	10.462	16	13 11 48.34	1.9091	10 38 44.5	9.032
17	11 43 22.53	1.8710	2 56 8.7	10.445	17	13 13 42.94	1.9109	10 47 45.1	8.988
18	11 45 14.78	1.8708	3 6 34.9	10.428	18	13 15 37.65	1.9128	10 56 43.1	8.944
19	11 47 7.02	1.8705	3 17 0.1	10.411	19	13 17 32.48	1.9148	11 5 38.4	8.898
20	11 48 59.24	1.8703	3 27 24.2	10.393	20	13 19 27.42	1.9167	11 14 30.9	8.852
21	11 50 51.45	1.8701	3 37 47.2	10.373	21	13 21 22.48	1.9187	11 23 20.7	8.807
22	11 52 43.65	1.8700	3 48 9.0	10.353	22	13 23 17.66	1.9207	11 32 7.7	8.760
23	11 54 35.85	1.8699	3 58 29.6	10.334	23	13 25 12.96	1.9228	11 40 51.9	8.713
24	11 56 28.04	1.8699	S. 4 8 49.1	10.314	24	13 27 8.39	1.9249	S. 11 49 33.3	8.665

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.																								
WEDNESDAY 29.					FRIDAY 31.																												
	h m s	s	° ' "	"		h m s	s	° ' "	"																								
0	13 27 8.39	1.9249	S. 11 49 33.3	8.665	0	15 2 24.87	2.0510	S. 17 38 44.4	5.649																								
1	13 29 3.95	1.9270	11 58 11.7	8.616	1	15 4 28.02	2.0539	17 44 21.0	5.572																								
2	13 30 59.63	1.9292	12 6 47.2	8.567	2	15 6 31.34	2.0568	17 49 53.0	5.493																								
3	13 32 55.45	1.9314	12 15 19.8	8.518	3	15 8 34.83	2.0597	17 55 20.2	5.414																								
4	13 34 51.40	1.9336	12 23 49.4	8.468	4	15 10 38.50	2.0625	18 0 42.7	5.335																								
5	13 36 47.48	1.9358	12 32 15.9	8.416	5	15 12 42.33	2.0653	18 6 0.4	5.255																								
6	13 38 43.70	1.9381	12 40 39.3	8.364	6	15 14 46.34	2.0682	18 11 13.3	5.174																								
7	13 40 40.05	1.9403	12 48 59.6	8.312	7	15 16 50.52	2.0710	18 16 21.3	5.093																								
8	13 42 36.54	1.9427	12 57 16.8	8.260	8	15 18 54.86	2.0738	18 21 24.5	5.012																								
9	13 44 33.18	1.9452	13 5 30.8	8.207	9	15 20 59.37	2.0766	18 26 22.7	4.929																								
10	13 46 29.96	1.9475	13 13 41.6	8.153	10	15 23 4.05	2.0794	18 31 16.0	4.847																								
11	13 48 26.88	1.9498	13 21 49.1	8.098	11	15 25 8.90	2.0822	18 36 4.3	4.763																								
12	13 50 23.94	1.9523	13 29 53.4	8.043	12	15 27 13.91	2.0849	18 40 47.6	4.679																								
13	13 52 21.15	1.9548	13 37 54.3	7.988	13	15 29 19.09	2.0878	18 45 25.8	4.594																								
14	13 54 18.51	1.9573	13 45 51.9	7.932	14	15 31 24.44	2.0905	18 49 58.9	4.509																								
15	13 56 16.02	1.9598	13 53 46.1	7.874	15	15 33 29.95	2.0932	18 54 26.9	4.424																								
16	13 58 13.68	1.9623	14 1 36.8	7.817	16	15 35 35.62	2.0959	18 58 49.8	4.338																								
17	14 0 11.50	1.9649	14 9 24.1	7.758	17	15 37 41.46	2.0987	19 3 7.4	4.250																								
18	14 2 9.47	1.9674	14 17 7.8	7.699	18	15 39 47.46	2.1013	19 7 19.8	4.163																								
19	14 4 7.59	1.9700	14 24 48.0	7.640	19	15 41 53.62	2.1039	19 11 27.0	4.076																								
20	14 6 5.87	1.9727	14 32 24.6	7.580	20	15 43 59.93	2.1065	19 15 28.9	3.988																								
21	14 8 4.31	1.9753	14 39 57.6	7.519	21	15 46 6.40	2.1092	19 19 25.5	3.898																								
22	14 10 2.91	1.9780	14 47 26.9	7.457	22	15 48 13.03	2.1118	19 23 16.7	3.809																								
23	14 12 1.67	1.9806	S. 14 54 52.5	7.396	23	15 50 19.82	2.1143	S. 19 27 2.6	3.719																								
THURSDAY 30.					SATURDAY, JUNE 1.																												
0	14 14 0.58	1.9833	S. 15 2 14.4	7.333	0	15 52 26.75	2.1168	S. 19 30 43.0	3.628																								
1	14 15 59.66	1.9860	15 9 32.5	7.270	PHASES OF THE MOON.																												
2	14 17 58.90	1.9888	15 16 46.8	7.207																													
3	14 19 58.31	1.9915	15 23 57.3	7.143																													
4	14 21 57.88	1.9943	15 31 3.9	7.077																													
5	14 23 57.62	1.9971	15 38 6.6	7.012	<table><tr><td></td><td>d</td><td>h</td><td>m</td></tr><tr><td>○ Full Moon</td><td>May</td><td>3</td><td>6 18.9</td></tr><tr><td>☾ Last Quarter</td><td>11</td><td>2</td><td>38.0</td></tr><tr><td>● New Moon</td><td>17</td><td>17</td><td>37.6</td></tr><tr><td>☾ First Quarter</td><td>24</td><td>17</td><td>39.6</td></tr></table>										d	h	m	○ Full Moon	May	3	6 18.9	☾ Last Quarter	11	2	38.0	● New Moon	17	17	37.6	☾ First Quarter	24	17	39.6
	d	h	m																														
○ Full Moon	May	3	6 18.9																														
☾ Last Quarter	11	2	38.0																														
● New Moon	17	17	37.6																														
☾ First Quarter	24	17	39.6																														
6	14 25 57.53	1.9998	15 45 5.4	6.946																													
7	14 27 57.60	2.0026	15 52 0.1	6.878																													
8	14 29 57.84	2.0053	15 58 50.8	6.812																													
9	14 31 58.24	2.0082	16 5 37.5	6.743	<table><tr><td></td><td>d</td><td>h</td></tr><tr><td>☾ Apogee</td><td>May</td><td>1 20.2</td></tr><tr><td>☾ Perigee</td><td>16</td><td>18.8</td></tr><tr><td>☾ Apogee</td><td>29</td><td>5.2</td></tr></table>										d	h	☾ Apogee	May	1 20.2	☾ Perigee	16	18.8	☾ Apogee	29	5.2								
	d	h																															
☾ Apogee	May	1 20.2																															
☾ Perigee	16	18.8																															
☾ Apogee	29	5.2																															
10	14 33 58.82	2.0111	16 12 20.0	6.674																													
11	14 35 59.57	2.0139	16 18 58.4	6.605																													
12	14 38 0.49	2.0168	16 25 32.6	6.535																													
13	14 40 1.58	2.0196	16 32 2.6	6.465																													
14	14 42 2.84	2.0224	16 38 28.4	6.394																													
15	14 44 4.27	2.0253	16 44 49.9	6.322																													
16	14 46 5.87	2.0281	16 51 7.0	6.249																													
17	14 48 7.64	2.0309	16 57 19.8	6.177																													
18	14 50 9.58	2.0338	17 3 28.2	6.103																													
19	14 52 11.70	2.0368	17 9 32.2	6.029																													
20	14 54 13.99	2.0396	17 15 31.7	5.954																													
21	14 56 16.45	2.0425	17 21 26.7	5.879																													
22	14 58 19.09	2.0454	17 27 17.2	5.803																													
23	15 0 21.90	2.0482	17 33 3.1	5.727																													
24	15 2 24.87	2.0510	S. 17 38 44.4	5.649																													

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	Pollux W.	84 25 41	3154	85 52 45	3155	87 19 48	3155	88 46 51	3154
	MARS W.	49 5 39	3235	50 31 7	3233	51 56 37	3231	53 22 9	3229
	Regulus W.	47 31 5	3109	48 59 4	3108	50 27 3	3107	51 55 4	3105
	Antares E.	52 25 4	3109	50 57 5	3111	49 29 9	3113	48 1 15	3115
	JUPITER E.	87 12 22	3080	85 43 48	3080	84 15 14	3080	82 46 40	3080
	SATURN E.	90 31 59	3076	89 3 20	3077	87 34 42	3077	86 6 4	3078
2	Pollux W.	96 2 9	3154	97 29 13	3153	98 56 18	3153	100 23 24	3152
	MARS W.	60 30 22	3220	61 56 7	3218	63 21 54	3216	64 47 44	3211
	Regulus W.	59 15 36	3098	60 43 48	3096	62 12 2	3094	63 40 19	3092
	Antares E.	40 42 27	3127	39 14 50	3130	37 47 17	3133	36 19 48	3136
	JUPITER E.	75 23 48	3078	73 55 11	3077	72 26 34	3076	70 57 55	3075
	SATURN E.	78 42 54	3075	77 14 14	3074	75 45 33	3073	74 16 50	3072
3	MARS W.	71 57 35	3202	73 23 42	3199	74 49 52	3196	76 16 6	3193
	Regulus W.	71 2 23	3080	72 30 57	3078	73 59 33	3075	75 28 13	3071
	Spica W.	17 1 41	3059	18 30 41	3056	19 59 44	3053	21 28 51	3050
	JUPITER E.	63 34 13	3066	62 5 22	3064	60 36 28	3062	59 7 31	3060
	SATURN E.	66 52 49	3063	65 23 54	3061	63 54 57	3058	62 25 56	3056
4	MARS W.	83 28 10	3177	84 54 47	3173	86 21 28	3169	87 48 14	3166
	Regulus W.	82 52 35	3055	84 21 40	3051	85 50 49	3047	87 20 3	3043
	Spica W.	28 55 22	3034	30 24 52	3030	31 54 27	3026	33 24 7	3022
	JUPITER E.	51 42 2	3045	50 12 45	3043	48 43 26	3040	47 14 3	3037
	SATURN E.	55 0 6	3042	53 30 45	3039	52 1 21	3036	50 31 52	3033
5	MARS W.	95 3 14	3144	96 30 30	3140	97 57 50	3135	99 25 17	3130
	Regulus W.	94 47 30	3022	96 17 16	3017	97 47 8	3012	99 17 6	3007
	Spica W.	40 53 45	3000	42 23 58	2996	43 54 16	2990	45 24 41	2985
	JUPITER E.	39 46 4	3020	38 16 16	3017	36 46 25	3014	35 16 29	3011
	SATURN E.	43 3 27	3014	41 33 32	3011	40 3 33	3007	38 33 29	3004
6	MARS W.	106 44 3	3105	108 12 7	3099	109 40 18	3092	111 8 37	3086
	Spica W.	52 58 30	2956	54 29 38	2950	56 0 54	2943	57 32 18	2936
	SATURN E.	31 2 3	2986	29 31 33	2984	28 1 0	2981	26 30 24	2979
	Fomalhaut E.	78 48 33	3455	77 27 19	3454	76 6 4	3455	74 44 50	3455
	α Pegasi E.	95 43 54	3103	94 15 48	3096	92 47 34	3089	91 19 11	3082
7	Spica W.	65 11 32	2900	66 43 51	2891	68 16 21	2883	69 49 2	2875
	Antares W.	20 32 19	3085	22 0 47	3056	23 29 51	3029	24 59 28	3004
	Fomalhaut E.	67 59 5	3471	66 38 8	3476	65 17 17	3482	63 56 33	3489
	α Pegasi E.	83 55 10	3047	82 25 56	3041	80 56 34	3034	79 27 3	3027
8	Spica W.	77 35 13	2829	79 9 3	2819	80 43 6	2809	82 17 22	2798
	Antares W.	32 34 25	2909	34 6 33	2892	35 39 2	2876	37 11 51	2862
	α Pegasi E.	71 57 19	2993	70 26 57	2985	68 56 26	2979	67 25 47	2973
	SUN E.	127 12 4	3177	125 45 27	3167	124 18 38	3155	122 51 35	3144
9	Spica W.	90 12 14	2743	91 47 57	2732	93 23 55	2719	95 0 10	2707
	Antares W.	45 0 40	2789	46 35 22	2775	48 10 23	2760	49 45 43	2746
	α Pegasi E.	59 50 37	2944	58 19 14	2939	56 47 44	2935	55 16 9	2931
	SUN E.	115 32 48	3083	114 4 18	3070	112 35 32	3057	111 6 30	3044

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Da. of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	Pollux	W.	90 13 55	3154	91 40 58	3154	93 8 1	3154	94 35 5	3154
	MARS	W.	54 47 44	3228	56 13 20	3226	57 38 59	3224	59 4 39	3222
	Regulus	W.	53 23 8	3104	54 51 13	3103	56 19 18	3101	57 47 25	3099
	Antares	E.	46 33 24	3118	45 5 36	3120	43 37 50	3122	42 10 7	3124
	JUPITER	E.	81 18 6	3080	79 49 32	3080	78 20 58	3079	76 52 23	3079
	SATURN	E.	84 37 27	3078	83 8 50	3077	81 40 12	3076	80 11 33	3076
2	Pollux	W.	101 50 30	3152	103 17 37	3152	104 44 44	3151	106 11 52	3151
	MARS	W.	66 13 37	3212	67 39 32	3209	69 5 30	3207	70 31 31	3204
	Regulus	W.	65 8 38	3090	66 37 0	3088	68 5 24	3085	69 33 52	3082
	Antares	E.	34 52 22	3140	33 25 1	3145	31 57 46	3150	30 30 37	3156
	JUPITER	E.	69 29 14	3074	68 0 33	3072	66 31 48	3070	65 3 2	3068
	SATURN	E.	72 48 6	3070	71 19 20	3069	69 50 32	3067	68 21 42	3065
3	MARS	W.	77 42 23	3190	79 8 44	3187	80 35 8	3183	82 1 37	3180
	Regulus	W.	76 56 58	3068	78 25 46	3065	79 54 38	3062	81 23 34	3058
	Spica	W.	22 58 1	3047	24 27 15	3044	25 56 33	3041	27 25 55	3037
	JUPITER	E.	57 38 32	3057	56 9 29	3055	54 40 24	3052	53 11 15	3048
	SATURN	E.	60 56 53	3054	59 27 47	3051	57 58 37	3047	56 29 23	3045
4	MARS	W.	89 15 4	3162	90 41 59	3158	92 8 59	3153	93 36 4	3149
	Regulus	W.	88 49 22	3039	90 18 46	3035	91 48 15	3030	93 27 50	3026
	Spica	W.	34 53 52	3018	36 23 42	3014	37 53 37	3009	39 23 38	3005
	JUPITER	E.	45 44 35	3034	44 15 4	3030	42 45 28	3026	41 15 48	3023
	SATURN	E.	49 2 20	3030	47 32 44	3026	46 3 3	3022	44 33 17	3018
5	MARS	W.	100 52 50	3125	102 20 29	3120	103 48 14	3115	105 16 5	3110
	Regulus	W.	100 47 10	3002	102 17 21	2997	103 47 38	2991	105 18 2	2985
	Spica	W.	46 55 13	2980	48 25 51	2974	49 56 37	2968	51 27 30	2962
	JUPITER	E.	33 46 30	3008	32 16 27	3005	30 46 21	3003	29 16 11	3001
	SATURN	E.	37 3 21	3000	35 33 8	2996	34 2 50	2993	32 32 29	2989
6	MARS	W.	112 37 4	3081	114 5 37	3075	115 34 17	3069	117 3 5	3064
	Spica	W.	59 3 51	2929	60 35 33	2922	62 7 23	2915	63 39 23	2908
	SATURN	E.	24 59 45	2980	23 29 7	2981	21 58 30	2981	20 27 53	2980
	Fomalhaut	E.	73 23 36	3457	72 2 24	3459	70 41 14	3462	69 20 7	3466
	α Pegasi	E.	89 50 40	3075	88 22 0	3069	86 53 12	3061	85 24 15	3055
7	Spica	W.	71 21 53	2866	72 54 55	2857	74 28 9	2848	76 1 35	2838
	Antares	W.	26 29 36	2981	28 0 12	2961	29 31 14	2942	31 2 39	2925
	Fomalhaut	E.	62 35 57	3498	61 15 31	3509	59 55 16	3521	58 35 15	3535
	α Pegasi	E.	77 57 23	3020	76 27 35	3013	74 57 38	3006	73 27 33	2999
8	Spica	W.	83 51 52	2788	85 26 35	2777	87 1 33	2766	88 36 46	2754
	Antares	W.	38 44 59	2847	40 18 26	2833	41 52 11	2818	43 26 16	2803
	α Pegasi	E.	65 55 0	2966	64 24 5	2960	62 53 3	2955	61 21 53	2950
	SUN	E.	121 24 18	3133	119 56 48	3120	118 29 3	3108	117 1 3	3096
9	Spica	W.	96 36 41	2694	98 13 29	2681	99 50 34	2668	101 27 56	2655
	Antares	W.	51 21 21	2782	52 57 18	2718	54 33 34	2703	56 10 10	2689
	α Pegasi	E.	53 44 29	2927	52 12 45	2926	50 40 59	2925	49 9 11	2924
	SUN	E.	109 37 12	3030	108 7 37	3017	106 37 45	3002	105 7 35	2988

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.			P. L. of Diff.	VIh.			P. L. of Diff.	IXh.			P. L. of Diff.
					°	'	"		°	'	"		°	'	"	
10	Antares	W.	57 47 5	2674	59 24 20			2660	61 1 54			2644	62 39 49			2629
	JUPITER	W.	23 1 45	2693	24 38 34			2674	26 15 49			2651	27 53 31			2635
	SATURN	W.	19 42 53	2708	21 19 22			2686	22 56 21			2665	24 33 48			2644
	SUN	E.	103 37 7	2973	102 6 21			2958	100 35 17			2943	99 3 53			2928
11	Antares	W.	70 54 35	2553	72 34 35			2538	74 14 56			2522	75 55 39			2505
	JUPITER	W.	36 8 24	2544	37 48 36			2527	39 29 12			2510	41 10 12			2492
	SATURN	W.	32 47 54	2549	34 27 59			2532	36 8 28			2514	37 49 22			2497
	SUN	E.	91 21 59	2849	89 48 35			2833	88 14 50			2817	86 40 44			2800
12	Antares	W.	84 24 48	2427	86 7 45			2411	87 51 4			2395	89 34 46			2380
	JUPITER	W.	49 41 9	2409	51 24 31			2392	53 8 17			2375	54 52 27			2359
	SATURN	W.	46 19 54	2412	48 3 12			2396	49 46 53			2379	51 30 58			2362
	SUN	E.	78 44 45	2716	77 8 27			2699	75 31 46			2683	73 54 43			2666
13	JUPITER	W.	63 39 11	2279	65 25 41			2264	67 12 34			2248	68 59 50			2233
	SATURN	W.	60 17 18	2282	62 3 44			2267	63 50 32			2251	65 37 43			2236
	α Aquilæ	W.	49 49 22	3009	51 19 24			2959	52 50 28			2912	54 22 32			2867
	SUN	E.	65 43 46	2583	64 4 28			2567	62 24 47			2551	60 44 44			2535
14	JUPITER	W.	78 1 38	2162	79 51 3			2149	81 40 47			2136	83 30 51			2124
	SATURN	W.	74 39 6	2166	76 28 25			2152	78 18 5			2139	80 8 4			2127
	α Aquilæ	W.	62 15 54	2689	63 52 49			2660	65 30 23			2632	67 8 34			2607
	SUN	E.	52 19 7	2460	50 36 58			2446	48 54 29			2433	47 11 41			2419
15	JUPITER	W.	92 45 37	2070	94 37 23			2061	96 29 24			2052	98 21 38			2044
	SATURN	W.	89 22 25	2073	91 14 6			2064	93 6 1			2055	94 58 9			2047
	α Aquilæ	W.	75 27 26	2505	77 8 32			2489	78 50 0			2475	80 31 48			2462
	α Pegasi	W.	28 0 16	2786	29 35 2			2704	31 11 40			2658	32 49 57			2564
	SUN	E.	38 33 16	2362	36 48 47			2352	35 4 3			2343	33 19 6			2334
16	α Aquilæ	W.	89 4 35	2421	90 47 39			2418	92 30 49			2416	94 14 2			2415
	α Pegasi	W.	41 19 49	2354	43 4 30			2326	44 49 51			2302	46 35 46			2282
	SUN	E.	24 31 33	2301	22 45 35			2297	20 59 31			2294	19 13 22			2290
19	SUN	W.	17 44 10	2408	19 27 34			2421	21 10 39			2435	22 53 25			2449
	Regulus	E.	73 4 45	2137	71 14 43			2152	69 25 3			2166	67 35 44			2180
	MARS	E.	77 37 43	2262	75 50 47			2274	74 4 10			2289	72 17 54			2304
20	SUN	W.	31 21 51	2530	33 2 23			2547	34 42 31			2565	36 22 15			2583
	Regulus	E.	58 34 45	2260	56 47 47			2277	55 1 14			2295	53 15 7			2314
	MARS	E.	63 32 17	2386	61 48 22			2404	60 4 53			2423	58 21 51			2443
	Spica	E.	112 19 36	2229	110 31 52			2246	108 44 33			2263	106 57 38			2280
21	SUN	W.	44 34 33	2678	46 11 42			2697	47 48 26			2717	49 24 43			2736
	Regulus	E.	44 31 33	2413	42 48 17			2435	41 5 32			2457	39 23 18			2479
	MARS	E.	49 53 39	2544	48 13 27			2566	46 33 45			2588	44 54 33			2610
	Spica	E.	98 9 25	2368	96 25 4			2387	94 41 10			2405	92 57 42			2423
22	SUN	W.	57 19 37	2837	58 53 17			2857	60 26 31			2876	61 59 20			2896
	MARS	E.	36 46 28	2731	35 10 29			2758	33 35 6			2785	32 0 19			2814
	Spica	E.	84 26 55	2516	82 46 4			2535	81 5 39			2553	79 25 39			2572

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
10	Antares	W.	64 18 5	2614	65 56 41	2599	67 35 38	2583	69 14 56	2568
	JUPITER	W.	29 31 39	2615	31 10 13	2597	32 49 12	2580	34 28 35	2561
	SATURN	W.	26 11 43	2623	27 50 6	2604	29 28 57	2585	31 8 13	2567
	SUN	E.	97 32 10	2912	96 0 7	2897	94 27 45	2881	92 55 2	2865
11	Antares	W.	77 36 45	2489	79 18 13	2474	81 0 2	2458	82 42 14	2443
	JUPITER	W.	42 51 36	2475	44 33 24	2459	46 15 35	2442	47 58 10	2425
	SATURN	W.	39 30 41	2480	41 12 23	2462	42 54 29	2445	44 37 0	2429
	SUN	E.	85 6 16	2784	83 31 27	2767	81 56 15	2750	80 20 41	2733
12	Antares	W.	91 18 50	2364	93 3 16	2348	94 48 5	2333	96 33 17	2318
	JUPITER	W.	56 37 1	2342	58 21 59	2327	60 7 19	2311	61 53 3	2294
	SATURN	W.	53 15 27	2346	55 0 20	2330	56 45 36	2314	58 31 15	2298
	SUN	E.	72 17 17	2649	70 39 28	2632	69 1 17	2615	67 22 43	2599
13	JUPITER	W.	70 47 28	2218	72 35 28	2204	74 23 50	2190	76 12 34	2176
	SATURN	W.	67 25 17	2222	69 13 12	2207	71 1 29	2193	72 50 7	2179
	α Aquilæ	W.	55 55 33	2826	57 29 26	2788	59 4 9	2752	60 39 40	2719
	SUN	E.	59 4 19	2519	57 23 32	2504	55 42 25	2489	54 0 56	2475
14	JUPITER	W.	85 21 13	2112	87 11 54	2101	89 2 52	2090	90 54 6	2080
	SATURN	W.	81 58 21	2115	83 48 57	2104	85 39 50	2093	87 31 0	2083
	α Aquilæ	W.	68 47 20	2583	70 26 38	2561	72 6 26	2540	73 46 43	2522
	SUN	E.	45 28 34	2407	43 45 9	2396	42 1 28	2384	40 17 30	2373
15	JUPITER	W.	100 14 4	2036	102 6 42	2029	103 59 31	2023	105 52 29	2018
	SATURN	W.	96 50 30	2039	98 43 3	2033	100 35 46	2026	102 28 39	2021
	α Aquilæ	W.	82 13 54	2451	83 56 16	2442	85 38 51	2433	87 21 38	2426
	α Pegasi	W.	34 29 41	2510	36 10 41	2461	37 52 49	2421	39 35 54	2386
	SUN	E.	31 33 57	2326	29 48 36	2319	28 3 4	2313	26 17 23	2307
16	α Aquilæ	W.	95 57 16	2416	97 40 29	2418	99 23 38	2422	101 6 42	2426
	α Pegasi	W.	48 22 12	2264	50 9 4	2249	51 56 18	2236	53 43 52	2225
	SUN	E.	17 27 8	2288	15 40 51	2287	13 54 33	2287	12 8 15	2288
19	SUN	W.	24 35 50	2465	26 17 53	2480	27 59 35	2496	29 40 55	2512
	Regulus	E.	65 46 46	2194	63 58 10	2210	62 9 58	2226	60 22 9	2243
	MARS	E.	70 32 0	2320	68 46 29	2336	67 1 21	2352	65 16 37	2368
20	SUN	W.	38 1 34	2601	39 40 27	2620	41 18 55	2639	42 56 57	2658
	Regulus	E.	51 29 28	2333	49 44 17	2352	47 59 33	2372	46 15 18	2393
	MARS	E.	56 39 17	2462	54 57 10	2482	53 15 31	2502	51 34 20	2523
	Spica	E.	105 11 9	2297	103 25 5	2314	101 39 26	2332	99 54 13	2350
21	SUN	W.	51 0 35	2756	52 36 0	2777	54 10 58	2796	55 45 31	2817
	Regulus	E.	37 41 35	2502	36 0 25	2526	34 19 49	2551	32 39 46	2576
	MARS	E.	43 15 52	2634	41 37 43	2657	40 0 5	2681	38 23 0	2706
	Spica	E.	91 14 40	2441	89 32 5	2460	87 49 56	2478	86 8 12	2497
22	SUN	W.	63 31 44	2916	65 3 42	2936	66 35 15	2955	68 6 24	2974
	MARS	E.	30 26 8	2844	28 52 37	2876	27 19 46	2909	25 47 38	2943
	Spica	E.	77 46 5	2590	76 6 56	2608	74 28 12	2626	72 49 52	2643

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
23	SUN W.	69 37 10	2993	71 7 32	3012	72 37 30	3030	74 7 5	3048
	Spica E.	71 11 55	2661	69 34 23	2678	67 57 14	2695	66 20 27	2712
	Antares E.	116 32 58	2690	114 56 5	2706	113 19 33	2723	111 43 24	2739
24	SUN W.	81 29 37	3134	82 57 5	3151	84 24 13	3166	85 51 3	3182
	Pollux W.	34 17 45	3056	35 46 49	3053	37 15 57	3050	38 45 8	3048
	Spica E.	58 22 3	2792	56 47 24	2807	55 13 5	2821	53 39 5	2835
	Antares E.	103 47 51	2816	102 13 44	2831	100 39 57	2845	99 6 28	2859
25	SUN W.	93 0 44	3253	94 25 51	3266	95 50 42	3278	97 15 19	3289
	Pollux W.	46 10 51	3060	47 39 49	3065	49 8 41	3069	50 37 29	3073
	Spica E.	45 53 31	2901	44 21 14	2913	42 49 12	2925	41 17 25	2935
	Antares E.	91 23 25	2924	89 51 37	2936	88 20 5	2947	86 48 47	2958
	JUPITER E.	125 23 23	2889	123 50 50	2901	122 18 32	2912	120 46 27	2922
26	SUN W.	104 15 7	3343	105 38 29	3352	107 1 39	3361	108 24 40	3369
	Pollux W.	57 59 54	3100	59 28 4	3105	60 56 8	3110	62 24 6	3114
	Regulus W.	20 59 42	3148	22 26 53	3138	23 54 17	3129	25 21 52	3122
	Spica E.	33 41 43	2985	32 11 11	2994	30 40 51	3001	29 10 40	3009
	JUPITER E.	113 9 15	2969	111 38 23	2976	110 7 40	2984	108 37 7	2991
	SATURN E.	116 48 2	2979	115 17 23	2987	113 46 54	2994	112 16 34	3002
27	SUN W.	115 17 33	3404	116 39 45	3410	118 1 50	3415	119 23 50	3420
	Pollux W.	69 4 38	3134	71 10 6	3138	72 37 30	3141	74 4 50	3144
	Regulus W.	32 41 0	3113	34 8 54	3112	35 36 49	3112	37 4 44	3111
	MARS W.	25 14 8	3349	26 37 23	3341	28 0 47	3334	29 24 20	3328
	JUPITER E.	101 6 28	3022	99 36 42	3026	98 7 2	3030	96 37 27	3034
	SATURN E.	104 47 3	3032	103 17 30	3037	101 48 4	3042	100 18 43	3046
28	Pollux W.	81 20 44	3154	82 47 48	3156	84 14 50	3157	85 41 51	3158
	Regulus W.	44 24 18	3113	45 52 12	3112	47 20 7	3111	48 48 3	3111
	MARS W.	36 23 31	3307	37 47 34	3305	39 11 39	3302	40 35 48	3299
	JUPITER E.	89 10 38	3049	87 41 26	3051	86 12 16	3052	84 43 8	3053
	SATURN E.	92 53 4	3060	91 24 6	3062	89 55 10	3064	88 26 16	3065
29	Pollux W.	92 56 46	3158	94 23 45	3158	95 50 45	3157	97 17 46	3156
	Regulus W.	56 7 55	3105	57 35 58	3103	59 4 3	3101	60 32 11	3099
	MARS W.	47 37 19	3287	49 1 46	3284	50 26 16	3280	51 50 51	3277
	JUPITER E.	77 17 40	3054	75 48 34	3053	74 19 27	3052	72 50 18	3051
	SATURN E.	81 1 59	3065	79 33 7	3065	78 4 14	3064	76 35 20	3062
30	Regulus W.	67 53 38	3084	69 22 7	3081	70 50 40	3077	72 19 18	3073
	MARS W.	58 54 41	3259	60 19 40	3255	61 44 43	3251	63 9 52	3247
	Spica W.	13 51 56	3062	15 20 52	3059	16 49 51	3056	18 18 54	3052
	JUPITER E.	65 24 5	3040	63 54 42	3037	62 25 15	3034	60 55 45	3030
	SATURN E.	69 10 18	3052	67 41 9	3048	66 11 56	3045	64 42 39	3042
31	Regulus W.	79 43 42	3051	81 12 52	3046	82 42 8	3041	84 11 30	3035
	MARS W.	70 16 59	3222	71 42 42	3217	73 8 31	3211	74 34 27	3206
	Spica W.	25 45 29	3030	27 15 5	3025	28 44 46	3020	30 14 34	3014
	JUPITER E.	53 27 7	3012	51 57 9	3008	50 27 6	3004	48 56 58	2999
	SATURN E.	57 15 11	3023	55 45 27	3018	54 15 37	3014	52 45 41	3009

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
23	SUN	W.	75 36 19	3066	77 5 10	3083	78 33 40	3101	80 1 49	3118
	Spica	E.	64 44 3	2729	63 8 1	2745	61 32 21	2761	59 57 2	2776
	Antares	E.	110 7 36	2755	108 32 9	2771	106 57 3	2786	105 22 17	2801
24	SUN	W.	87 17 34	3197	88 43 47	3211	90 9 42	3225	91 35 21	3239
	Pollux	W.	40 14 21	3049	41 43 33	3052	43 12 42	3054	44 41 48	3056
	Spica	E.	52 5 23	2849	50 32 0	2863	48 58 54	2876	47 26 4	2889
	Antares	E.	97 33 17	2873	96 0 24	2887	94 27 48	2899	92 55 28	2912
25	SUN	W.	98 39 43	3301	100 3 53	3312	101 27 49	3323	102 51 34	3333
	Pollux	W.	52 6 11	3078	53 34 46	3084	55 3 14	3089	56 31 37	3094
	Spica	E.	39 45 51	2946	38 14 30	2956	36 43 23	2965	35 12 27	2975
	Antares	E.	85 17 42	2969	83 46 51	2980	82 16 13	2990	80 45 47	3000
	JUPITER	E.	119 14 36	2932	117 42 58	2942	116 11 32	2951	114 40 18	2960
26	SUN	W.	109 47 32	3377	111 10 15	3385	112 32 48	3392	113 55 14	3398
	Pollux	W.	63 51 59	3119	65 19 46	3123	66 47 28	3127	68 15 5	3130
	Regulus	W.	26 49 35	3118	28 17 23	3116	29 45 13	3114	31 13 6	3113
	Spica	E.	27 40 39	3017	26 10 47	3023	24 41 3	3029	23 11 27	3035
	JUPITER	E.	107 6 43	2998	105 36 28	3005	104 6 21	3010	102 36 21	3016
	SATURN	E.	110 46 24	3009	109 16 22	3016	107 46 29	3022	106 16 43	3027
27	SUN	W.	120 45 44	3424	122 7 33	3428	123 29 18	3431	124 50 59	3433
	Pollux	W.	75 32 7	3147	76 59 20	3149	78 26 30	3151	79 53 38	3153
	Regulus	W.	38 32 40	3112	40 0 35	3113	41 28 29	3113	42 56 23	3112
	MARS	W.	30 47 59	3322	32 11 45	3318	33 35 36	3314	34 59 32	3311
	JUPITER	E.	95 7 57	3038	93 38 32	3041	92 9 11	3044	90 39 53	3047
	SATURN	E.	98 49 27	3050	97 20 16	3053	95 51 9	3056	94 22 5	3058
28	Pollux	W.	87 8 51	3158	88 35 50	3158	90 2 49	3159	91 29 47	3158
	Regulus	W.	50 15 59	3110	51 43 56	3110	53 11 54	3108	54 39 54	3107
	MARS	W.	42 0 1	3297	43 24 16	3294	44 48 34	3292	46 12 55	3289
	JUPITER	E.	83 14 1	3054	81 44 55	3055	80 15 50	3055	78 46 45	3055
	SATURN	E.	86 57 23	3066	85 28 31	3067	83 59 41	3066	82 30 50	3066
29	Pollux	W.	98 44 47	3155	100 11 50	3154	101 38 54	3153	103 6 0	3151
	Regulus	W.	62 0 22	3096	63 28 36	3094	64 56 53	3091	66 25 14	3088
	MARS	W.	53 15 29	3275	54 40 10	3271	56 4 56	3267	57 29 46	3263
	JUPITER	E.	71 21 8	3049	69 51 56	3047	68 22 42	3045	66 53 25	3043
	SATURN	E.	75 6 24	3061	73 37 27	3059	72 8 27	3056	70 39 24	3054
30	Regulus	W.	73 48 0	3069	75 16 47	3065	76 45 40	3060	78 14 38	3056
	MARS	W.	64 35 6	3242	66 0 26	3237	67 25 51	3232	68 51 22	3227
	Spica	W.	19 48 2	3047	21 17 16	3043	22 46 35	3039	24 15 59	3034
	JUPITER	E.	59 26 10	3027	57 56 31	3024	56 26 48	3020	54 57 0	3016
	SATURN	E.	63 13 18	3039	61 43 53	3035	60 14 24	3031	58 44 50	3027
31	Regulus	W.	85 40 59	3030	87 10 35	3025	88 40 17	3019	90 0 7	3014
	MARS	W.	76 0 29	3200	77 26 38	3194	78 52 54	3188	80 19 18	3182
	Spica	W.	31 44 29	3009	33 14 30	3004	34 44 38	2998	36 14 53	2992
	JUPITER	E.	47 26 44	2994	45 56 24	2990	44 25 59	2985	42 55 28	2981
	SATURN	E.	51 15 40	3005	49 45 33	3000	48 15 20	2995	46 45 0	2990

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from		Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Added to Apparent Time.				
		h m s	s	° ' "	"	' "	s	m s	s		
Sat.	1	4 34 35.34	10.219	N.21 59 57.1	+20.82	15 47.26	68.30	2 30.01	0.362		
SUN.	2	4 38 40.80	10.236	22 8 5.2	19.86	15 47.12	68.36	2 21.11	0.378		
Mon.	3	4 42 46.66	10.252	22 15 50.3	18.89	15 46.99	68.42	2 11.84	0.394		
Tues.	4	4 46 52.90	10.267	22 23 12.0	+17.91	15 46.86	68.47	2 2.18	0.410		
Wed.	5	4 50 59.51	10.282	22 30 10.3	16.93	15 46.74	68.52	1 52.16	0.425		
Thur.	6	4 55 6.47	10.297	22 36 45.1	15.95	15 46.62	68.56	1 41.79	0.439		
Frid.	7	4 59 13.76	10.311	22 42 55.9	+14.96	15 46.51	68.60	1 31.08	0.453		
Sat.	8	5 3 21.38	10.324	22 48 43.0	13.96	15 46.40	68.64	1 20.05	0.466		
SUN.	9	5 7 29.29	10.336	22 54 6.1	12.96	15 46.29	68.68	1 8.73	0.478		
Mon.	10	5 11 37.49	10.348	22 59 5.0	+11.95	15 46.18	68.71	0 57.12	0.489		
Tues.	11	5 15 45.95	10.358	23 3 39.7	10.94	15 46.08	68.74	0 45.24	0.500		
Wed.	12	5 19 54.66	10.368	23 7 50.0	9.92	15 45.98	68.77	0 33.12	0.509		
Thur.	13	5 24 3.59	10.376	23 11 36.0	+ 8.90	15 45.89	68.80	0 20.79	0.518		
Frid.	14	5 28 12.69	10.384	23 14 57.3	7.88	15 45.80	68.83	0 8.27	0.525		
Sat.	15	5 32 21.97	10.390	23 17 54.1	6.85	15 45.72	68.85	0 4.40	0.530		
SUN.	16	5 36 31.38	10.395	23 20 26.2	+ 5.82	15 45.64	68.87	0 17.22	0.535		
Mon.	17	5 40 40.89	10.398	23 22 33.6	4.79	15 45.57	68.88	0 30.14	0.540		
Tues.	18	5 44 50.49	10.401	23 24 16.3	3.76	15 45.50	68.89	0 43.15	0.543		
Wed.	19	5 49 0.13	10.402	23 25 34.3	+ 2.73	15 45.44	68.89	0 56.19	0.544		
Thur.	20	5 53 9.80	10.402	23 26 27.4	1.70	15 45.38	68.89	1 9.26	0.544		
Frid.	21	5 57 19.45	10.401	23 26 55.8	+ 0.67	15 45.32	68.89	1 22.33	0.544		
Sat.	22	6 1 29.07	10.400	23 26 59.4	- 0.37	15 45.27	68.89	1 35.36	0.542		
SUN.	23	6 5 38.65	10.397	23 26 38.2	1.40	15 45.22	68.88	1 48.34	0.539		
Mon.	24	6 9 48.15	10.393	23 25 52.1	2.43	15 45.17	68.87	2 1.24	0.535		
Tues.	25	6 13 57.53	10.388	23 24 41.5	- 3.46	15 45.13	68.86	2 14.04	0.531		
Wed.	26	6 18 6.80	10.383	23 23 6.1	4.49	15 45.10	68.85	2 26.71	0.525		
Thur.	27	6 22 15.92	10.376	23 21 6.1	5.51	15 45.07	68.83	2 39.24	0.518		
Frid.	28	6 26 24.87	10.369	23 18 41.4	- 6.54	15 45.04	68.81	2 51.61	0.511		
Sat.	29	6 30 33.63	10.361	23 15 52.3	7.56	15 45.02	68.78	3 3.78	0.503		
SUN.	30	6 34 42.19	10.352	23 12 38.5	8.58	15 45.00	68.75	3 15.74	0.494		
Mon.	31	6 38 50.52	10.342	N.23 9 0.4	- 9.59	15 44.99	68.72	3 27.48	0.484		

NOTE.—The mean time of semidiameter passing may be found by subtracting 0^s.19 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing; the sign — indicates that north declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Added to		Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Subtracted from Mean Time.			
						m s			
Sat.	1	h m s	s	° ' "	"	m s	s	h m s	
SUN.	2	4 34 35.77	+ 10.218	N.21 59 58.0	+ 20.82	2 29.99	- 0.362	4 37 5.76	
Mon.	3	4 38 41.21	10.235	22 8 6.0	19.86	2 21.10	0.378	4 41 2.31	
	4	4 42 47.04	10.251	22 15 51.0	18.89	2 11.83	0.394	4 44 58.87	
Tues.	5	4 46 53.25	+ 10.266	22 23 12.6	+ 17.91	2 2.17	- 0.410	4 48 55.42	
Wed.	6	4 50 59.83	10.281	22 30 10.8	16.93	1 52.15	0.425	4 52 51.98	
Thur.	7	4 55 6.76	10.296	22 36 45.4	15.95	1 41.78	0.439	4 56 48.54	
Frid.	8	4 59 14.02	+ 10.309	22 42 56.3	+ 14.96	1 31.07	- 0.453	5 0 45.10	
Sat.	9	5 3 21.61	10.322	22 48 43.3	13.96	1 20.04	0.466	5 4 41.65	
SUN.	10	5 7 29.49	10.334	22 54 6.3	12.96	1 8.72	0.478	5 8 38.21	
Mon.	11	5 11 37.66	+ 10.346	22 59 5.2	+ 11.95	0 57.11	- 0.489	5 12 34.77	
Tues.	12	5 15 46.09	10.356	23 3 39.8	10.94	0 45.23	0.500	5 16 31.32	
Wed.	13	5 19 54.76	10.366	23 7 50.1	9.92	0 33.12	0.509	5 20 27.88	
Thur.	14	5 24 3.65	+ 10.374	23 11 36.0	+ 8.90	0 20.79	- 0.518	5 24 24.44	
Frid.	15	5 28 12.72	10.382	23 14 57.3	7.88	0 8.27	0.525	5 28 20.99	
Sat.	16	5 32 21.96	10.388	23 17 54.1	6.85	0 4.40	0.530	5 32 17.55	
SUN.	17	5 36 31.33	+ 10.393	23 20 26.2	+ 5.82	0 17.22	- 0.535	5 36 14.11	
Mon.	18	5 40 40.80	10.396	23 22 33.6	4.79	0 30.14	0.540	5 40 10.66	
Tues.	19	5 44 50.36	10.399	23 24 16.3	3.76	0 43.14	0.543	5 44 7.22	
Wed.	20	5 48 59.96	+ 10.400	23 25 34.3	+ 2.73	0 56.18	- 0.544	5 48 3.78	
Thur.	21	5 53 9.59	10.401	23 26 27.4	1.70	1 9.25	0.544	5 52 0.34	
Frid.	22	5 57 19.21	10.400	23 26 55.8	+ 0.67	1 22.32	0.544	5 55 56.90	
Sat.	23	6 1 28.79	+ 10.399	23 26 59.4	- 0.37	1 35.34	- 0.542	5 59 53.45	
SUN.	24	6 5 38.33	10.396	23 26 38.2	1.40	1 48.32	0.539	6 3 50.01	
Mon.	25	6 9 47.79	10.392	23 25 52.3	2.43	2 1.22	0.535	6 7 46.57	
Tues.	26	6 13 57.14	+ 10.387	23 24 41.6	- 3.46	2 14.02	- 0.531	6 11 43.12	
Wed.	27	6 18 6.37	10.382	23 23 6.3	4.49	2 26.69	0.525	6 15 39.68	
Thur.	28	6 22 15.46	10.375	23 21 6.3	5.51	2 39.22	0.518	6 19 36.24	
Frid.	29	6 26 24.38	+ 10.368	23 18 41.7	- 6.54	2 51.59	- 0.511	6 23 32.79	
Sat.	30	6 30 33.10	10.360	23 15 52.7	7.56	3 3.75	0.503	6 27 29.35	
SUN.	31	6 34 41.62	10.351	23 12 39.0	8.58	3 15.71	0.494	6 31 25.91	
Mon.	32	6 38 49.92	+ 10.341	N.23 9 1.0	- 9.59	3 27.45	- 0.484	6 35 22.47	

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
 The sign + prefixed to the hourly change of declination indicates that north declinations are increasing; the sign — indicates that north declinations are decreasing.

Diff. for 1 Hour,
 + 9^h.8565.
 (Table III.)

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.	
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.				
		λ	λ'						
		$^{\circ}$ $'$ $''$	$'$ $''$	$''$	$''$			h m s	
1	152	70 16 36.1	16 2.2	143.63	+ 0.44	0.0061596	+26.2	19 19 43.73	
2	153	71 14 2.7	13 28.7	143.59	0.57	0.0062219	25.7	19 15 47.82	
3	154	72 11 28.4	10 54.2	143.55	0.68	0.0062830	25.2	19 11 51.91	
4	155	73 8 53.1	8 18.8	143.51	+ 0.78	0.0063428	+24.7	19 7 56.00	
5	156	74 6 17.1	5 42.6	143.48	0.87	0.0064013	24.1	19 4 0.09	
6	157	75 3 40.3	3 5.7	143.45	0.91	0.0064584	23.5	19 0 4.18	
7	158	76 1 2.9	0 28.1	143.43	+ 0.94	0.0065141	+22.9	18 56 8.27	
8	159	76 58 24.9	57 50.0	143.41	0.92	0.0065682	22.2	18 52 12.36	
9	160	77 55 46.4	55 11.3	143.39	0.89	0.0066206	21.5	18 48 16.44	
10	161	78 53 7.4	52 32.1	143.37	+ 0.81	0.0066712	+20.7	18 44 20.53	
11	162	79 50 28.0	49 52.6	143.35	0.71	0.0067198	19.8	18 40 24.62	
12	163	80 47 48.2	47 12.6	143.33	0.59	0.0067663	18.9	18 36 28.71	
13	164	81 45 8.0	44 32.2	143.31	+ 0.45	0.0068104	+17.9	18 32 32.80	
14	165	82 42 27.4	41 51.4	143.30	0.32	0.0068521	16.9	18 28 36.89	
15	166	83 39 46.2	39 10.1	143.28	0.18	0.0068913	15.8	18 24 40.98	
16	167	84 37 4.6	36 28.3	143.26	+ 0.05	0.0069279	+14.7	18 20 45.06	
17	168	85 34 22.4	33 45.9	143.23	- 0.06	0.0069618	13.6	18 16 49.15	
18	169	86 31 39.6	31 3.0	143.21	0.16	0.0069932	12.5	18 12 53.24	
19	170	87 28 56.2	28 19.4	143.18	- 0.21	0.0070219	+11.5	18 8 57.33	
20	171	88 26 12.2	25 35.2	143.15	0.24	0.0070482	10.5	18 5 1.42	
21	172	89 23 27.5	22 50.3	143.12	0.25	0.0070720	9.5	18 1 5.51	
22	173	90 20 42.1	20 4.8	143.09	- 0.22	0.0070938	+ 8.6	17 57 9.60	
23	174	91 17 56.1	17 18.6	143.07	0.17	0.0071133	7.7	17 53 13.69	
24	175	92 15 9.5	14 31.9	143.04	0.10	0.0071307	6.9	17 49 17.78	
25	176	93 12 22.4	11 44.6	143.02	- 0.01	0.0071462	+ 6.1	17 45 21.86	
26	177	94 9 34.7	8 56.7	143.00	+ 0.10	0.0071599	5.3	17 41 25.95	
27	178	95 6 46.6	6 8.4	142.99	0.23	0.0071717	4.6	17 37 30.04	
28	179	96 3 58.1	3 19.8	142.97	+ 0.35	0.0071819	+ 3.9	17 33 34.13	
29	180	97 1 9.2	0 30.7	142.96	0.47	0.0071905	3.2	17 29 38.22	
30	181	97 58 20.0	57 41.4	142.95	0.58	0.0071974	2.6	17 25 42.31	
31	182	98 55 30.7	54 51.9	142.94	+ 0.67	0.0072029	+ 2.0	17 21 46.40	
NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0 ^d .0 of the Besselian fictitious year.								Diff. for 1 Hour, —9 ^s .8296. (Table II.)	

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	THE MOON'S								
	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	' "	' "	' "	"	' "	"	h m	m	d
1	14 52.3	14 54.7	54 28.1	+ 0.69	54 36.9	+ 0.78	11 38.3	+ 2.05	14.3
2	14 57.4	15 0.4	54 46.8	0.86	54 57.6	0.94	12 28.0	2.09	15.3
3	15 3.5	15 6.9	55 9.3	1.00	55 21.8	1.07	13 18.5	2.11	16.3
4	15 10.5	15 14.3	55 35.0	+ 1.13	55 49.0	+ 1.19	14 9.2	+ 2.10	17.3
5	15 18.3	15 22.5	56 3.6	1.25	56 19.0	1.30	14 59.4	2.08	18.3
6	15 26.9	15 31.4	56 35.0	1.36	56 51.7	1.41	15 48.8	2.05	19.3
7	15 36.1	15 40.9	57 8.9	+ 1.46	57 26.7	+ 1.50	16 37.8	+ 2.03	20.3
8	15 45.9	15 51.0	57 44.9	1.53	58 3.5	1.55	17 26.6	2.04	21.3
9	15 56.0	16 1.1	58 22.1	1.55	58 40.8	1.53	18 16.0	2.09	22.3
10	16 6.1	16 10.9	58 59.0	+ 1.49	59 16.6	+ 1.42	19 6.9	+ 2.16	23.3
11	16 15.4	16 19.4	59 33.1	1.31	59 48.1	1.17	20 0.0	2.27	24.3
12	16 23.0	16 26.0	60 1.3	1.00	60 12.1	0.78	20 56.0	2.39	25.3
13	16 28.2	16 29.5	60 20.2	+ 0.54	60 25.1	+ 0.27	21 54.8	+ 2.50	26.3
14	16 29.9	16 29.4	60 26.6	- 0.02	60 24.5	- 0.33	22 55.7	2.55	27.3
15	16 27.8	16 25.2	60 18.7	0.64	60 9.2	0.94	23 56.9	2.52	28.3
16	16 21.7	16 17.2	59 56.2	- 1.22	59 39.9	- 1.48	6		29.3
17	16 12.0	16 6.0	59 20.7	1.70	58 59.1	1.88	0 56.6	+ 2.43	0.9
18	15 59.7	15 53.0	58 35.7	2.00	58 11.0	2.09	1 53.2	2.28	1.9
19	15 46.1	15 39.1	57 45.5	- 2.13	57 19.8	- 2.12	2 46.2	+ 2.13	2.9
20	15 32.2	15 25.5	56 54.5	2.08	56 29.9	1.99	3 35.5	1.99	3.9
21	15 19.1	15 13.2	56 6.6	1.88	55 44.9	1.73	4 21.8	1.88	4.9
22	15 7.8	15 3.0	55 25.0	- 1.57	55 7.3	- 1.38	5 5.9	+ 1.81	5.9
23	14 58.8	14 55.2	54 51.8	1.19	54 38.8	0.99	5 48.9	1.78	6.9
24	14 52.3	14 50.2	54 28.2	0.77	54 20.2	0.56	6 31.5	1.78	7.9
25	14 48.7	14 47.8	54 14.7	- 0.35	54 11.6	- 0.15	7 14.6	+ 1.82	8.9
26	14 47.7	14 48.1	54 11.0	+ 0.04	54 12.7	+ 0.23	7 58.9	1.88	9.9
27	14 49.2	14 50.8	54 16.5	0.40	54 22.4	0.56	8 44.8	1.95	10.9
28	14 52.9	14 55.4	54 30.1	+ 0.71	54 39.5	+ 0.84	9 32.5	+ 2.03	11.9
29	14 58.4	15 1.7	54 50.3	0.95	55 2.4	1.05	10 22.0	2.09	12.9
30	15 5.2	15 9.0	55 15.5	1.13	55 29.5	1.19	11 12.7	2.13	13.9
31	15 13.0	15 17.1	55 44.1	+ 1.23	55 59.1	+ 1.26	12 4.0	+ 2.14	14.9

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 1.					MONDAY 3.				
	h m s	s	" "	"		h m s	s	" "	"
0	15 52 26.75	2.1168	S. 19 30 43.0	3.628	0	17 36 23.35	2.1992	S. 20 33 12.0	1.139
1	15 54 33.84	2.1195	19 34 18.0	3.538	1	17 38 35.32	2.1998	20 32 0.5	1.244
2	15 56 41.09	2.1220	19 37 47.6	3.447	2	17 40 47.33	2.2006	20 30 42.7	1.348
3	15 58 48.48	2.1244	19 41 11.6	3.355	3	17 42 59.39	2.2013	20 29 18.7	1.451
4	16 0 56.02	2.1268	19 44 30.2	3.263	4	17 45 11.48	2.2018	20 27 48.3	1.558
5	16 3 3.70	2.1293	19 47 43.2	3.170	5	17 47 23.60	2.2023	20 26 11.7	1.662
6	16 5 11.53	2.1317	19 50 50.6	3.077	6	17 49 35.75	2.2028	20 24 28.8	1.767
7	16 7 19.50	2.1341	19 53 52.4	2.983	7	17 51 47.93	2.2032	20 22 39.7	1.872
8	16 9 27.62	2.1364	19 56 48.6	2.889	8	17 54 0.13	2.2036	20 20 44.2	1.977
9	16 11 35.87	2.1387	19 59 39.1	2.795	9	17 56 12.36	2.2039	20 18 42.5	2.081
10	16 13 44.26	2.1409	20 2 24.0	2.700	10	17 58 24.60	2.2042	20 16 34.5	2.186
11	16 15 52.78	2.1432	20 5 3.1	2.604	11	18 0 36.86	2.2044	20 14 20.2	2.289
12	16 18 1.44	2.1454	20 7 36.5	2.508	12	18 2 49.13	2.2046	20 11 59.8	2.393
13	16 20 10.23	2.1476	20 10 4.1	2.413	13	18 5 1.41	2.2048	20 9 33.0	2.499
14	16 22 19.15	2.1498	20 12 26.0	2.317	14	18 7 13.70	2.2049	20 6 59.9	2.603
15	16 24 28.20	2.1518	20 14 42.1	2.219	15	18 9 26.00	2.2050	20 4 20.6	2.707
16	16 26 37.37	2.1539	20 16 52.3	2.122	16	18 11 38.30	2.2051	20 1 35.1	2.811
17	16 28 46.67	2.1560	20 18 56.7	2.024	17	18 13 50.61	2.2051	19 58 43.3	2.915
18	16 30 56.09	2.1580	20 20 55.2	1.926	18	18 16 2.91	2.2050	19 55 45.3	3.019
19	16 33 5.63	2.1599	20 22 47.8	1.827	19	18 18 15.21	2.2049	19 52 41.0	3.122
20	16 35 15.28	2.1618	20 24 34.5	1.729	20	18 20 27.50	2.2048	19 49 30.6	3.226
21	16 37 25.05	2.1638	20 26 15.3	1.630	21	18 22 39.79	2.2047	19 46 13.9	3.329
22	16 39 34.94	2.1657	20 27 50.1	1.530	22	18 24 52.06	2.2044	19 42 51.1	3.432
23	16 41 44.93	2.1674	S. 20 29 18.9	1.430	23	18 27 4.32	2.2043	S. 19 39 22.1	3.535
SUNDAY 2.					TUESDAY 4.				
	h m s	s	" "	"		h m s	s	" "	"
0	16 43 55.03	2.1693	S. 20 30 41.7	1.330	0	18 29 16.57	2.2040	S. 19 35 46.9	3.637
1	16 46 5.24	2.1710	20 31 58.5	1.230	1	18 31 28.80	2.2037	19 32 5.6	3.740
2	16 48 15.55	2.1727	20 33 9.3	1.129	2	18 33 41.01	2.2033	19 28 18.1	3.842
3	16 50 25.96	2.1743	20 34 14.0	1.028	3	18 35 53.20	2.2029	19 24 24.5	3.944
4	16 52 36.47	2.1759	20 35 12.7	0.927	4	18 38 5.36	2.2024	19 20 24.8	4.046
5	16 54 47.07	2.1775	20 36 5.3	0.826	5	18 40 17.49	2.2020	19 16 19.0	4.147
6	16 56 57.77	2.1791	20 36 51.8	0.724	6	18 42 29.60	2.2016	19 12 7.1	4.248
7	16 59 8.56	2.1806	20 37 32.2	0.622	7	18 44 41.68	2.2011	19 7 49.2	4.349
8	17 1 19.44	2.1820	20 38 6.4	0.519	8	18 46 53.73	2.2005	19 3 25.2	4.450
9	17 3 30.40	2.1834	20 38 34.5	0.417	9	18 49 5.74	2.1999	18 58 55.2	4.550
10	17 5 41.45	2.1848	20 38 56.4	0.314	10	18 51 17.72	2.1993	18 54 19.2	4.650
11	17 7 52.58	2.1861	20 39 12.2	0.212	11	18 53 29.65	2.1986	18 49 37.2	4.750
12	17 10 3.78	2.1873	20 39 21.9	0.109	12	18 55 41.55	2.1980	18 44 49.2	4.849
13	17 12 15.06	2.1886	20 39 25.3	-0.006	13	18 57 53.41	2.1973	18 39 55.3	4.948
14	17 14 26.41	2.1898	20 39 22.6	+0.098	14	19 0 5.22	2.1965	18 34 55.4	5.047
15	17 16 37.84	2.1910	20 39 13.6	0.202	15	19 2 16.99	2.1958	18 29 49.6	5.146
16	17 18 49.33	2.1920	20 38 58.4	0.305	16	19 4 28.71	2.1950	18 24 37.9	5.243
17	17 21 0.88	2.1931	20 38 37.0	0.409	17	19 6 40.39	2.1942	18 19 20.4	5.341
18	17 23 12.50	2.1942	20 38 9.3	0.513	18	19 8 52.02	2.1933	18 13 57.0	5.438
19	17 25 24.18	2.1951	20 37 35.4	0.617	19	19 11 3.59	2.1924	18 8 27.8	5.535
20	17 27 35.91	2.1959	20 36 55.2	0.722	20	19 13 15.11	2.1916	18 2 52.8	5.632
21	17 29 47.69	2.1968	20 36 8.8	0.826	21	19 15 26.58	2.1908	17 57 12.0	5.727
22	17 31 59.53	2.1977	20 35 16.1	0.930	22	19 17 38.00	2.1898	17 51 25.5	5.823
23	17 34 11.42	2.1985	20 34 17.2	1.034	23	19 19 49.36	2.1888	17 45 33.2	5.918
24	17 36 23.35	2.1992	S. 20 33 12.0	1.139	24	19 22 0.66	2.1878	S. 17 39 35.3	6.012

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.			Diff. for 1 Minute.	Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.			Diff. for 1 Minute.
WEDNESDAY 5.									FRIDAY 7.								
	h	m	s	s	°	'	"	"		h	m	s	s	°	'	"	"
0	19	22	0.66	2.1878	S. 17	39	35.3	6.012	0	21	5	46.91	2.1377	S. 11	12	10.2	9.890
1	19	24	11.90	2.1869	17	33	31.7	6.107	1	21	7	55.15	2.1370	11	2	14.9	9.954
2	19	26	23.09	2.1859	17	27	22.5	6.201	2	21	10	3.35	2.1363	10	52	15.7	10.017
3	19	28	34.21	2.1849	17	21	7.6	6.295	3	21	12	11.50	2.1355	10	42	12.8	10.080
4	19	30	45.28	2.1839	17	14	47.1	6.388	4	21	14	19.61	2.1349	10	32	6.1	10.142
5	19	32	56.28	2.1828	17	8	21.1	6.479	5	21	16	27.69	2.1343	10	21	55.7	10.204
6	19	35	7.21	2.1818	17	1	49.6	6.571	6	21	18	35.73	2.1337	10	11	41.6	10.264
7	19	37	18.09	2.1808	16	55	12.6	6.662	7	21	20	43.73	2.1331	10	1	24.0	10.323
8	19	39	28.90	2.1796	16	48	30.1	6.753	8	21	22	51.70	2.1325	9	51	2.8	10.383
9	19	41	39.64	2.1785	16	41	42.2	6.843	9	21	24	59.63	2.1320	9	40	38.0	10.442
10	19	43	50.32	2.1774	16	34	48.9	6.933	10	21	27	7.54	2.1316	9	30	9.8	10.498
11	19	46	0.93	2.1763	16	27	50.2	7.022	11	21	29	15.42	2.1311	9	19	38.2	10.554
12	19	48	11.47	2.1752	16	20	46.2	7.111	12	21	31	23.27	2.1307	9	9	3.3	10.610
13	19	50	21.95	2.1741	16	13	36.9	7.199	13	21	33	31.10	2.1303	8	58	25.0	10.665
14	19	52	32.36	2.1729	16	6	22.3	7.287	14	21	35	38.91	2.1301	8	47	43.5	10.719
15	19	54	42.70	2.1718	15	59	2.4	7.374	15	21	37	46.71	2.1298	8	36	58.7	10.772
16	19	56	52.97	2.1706	15	51	37.4	7.460	16	21	39	54.49	2.1295	8	26	10.8	10.824
17	19	59	3.17	2.1695	15	44	7.2	7.546	17	21	42	2.25	2.1293	8	15	19.8	10.876
18	20	1	13.31	2.1683	15	36	31.9	7.632	18	21	44	10.01	2.1292	8	4	25.7	10.927
19	20	3	23.37	2.1672	15	28	51.4	7.717	19	21	46	17.75	2.1290	7	53	28.6	10.977
20	20	5	33.37	2.1660	15	21	5.9	7.800	20	21	48	25.49	2.1289	7	42	28.5	11.026
21	20	7	43.29	2.1648	15	13	15.4	7.884	21	21	50	33.22	2.1288	7	31	25.5	11.074
22	20	9	53.15	2.1637	15	5	19.8	7.967	22	21	52	40.95	2.1288	7	20	19.6	11.121
23	20	12	2.94	2.1625	S. 14	57	19.3	8.049	23	21	54	48.68	2.1288	S. 7	9	11.0	11.167
THURSDAY 6.									SATURDAY 8.								
0	20	14	12.65	2.1613	S. 14	49	13.9	8.131	0	21	56	56.41	2.1289	S. 6	57	59.6	11.212
1	20	16	22.30	2.1603	14	41	3.6	8.212	1	21	59	4.15	2.1291	6	46	45.5	11.257
2	20	18	31.88	2.1592	14	32	48.5	8.292	2	22	1	11.90	2.1293	6	35	28.7	11.302
3	20	20	41.40	2.1581	14	24	28.5	8.372	3	22	3	19.66	2.1294	6	24	9.3	11.344
4	20	22	50.85	2.1569	14	16	3.8	8.452	4	22	5	27.43	2.1297	6	12	47.4	11.386
5	20	25	0.23	2.1558	14	7	34.3	8.531	5	22	7	35.22	2.1300	6	1	23.0	11.427
6	20	27	9.54	2.1547	13	59	0.1	8.608	6	22	9	43.03	2.1303	5	49	56.1	11.467
7	20	29	18.79	2.1537	13	50	21.3	8.685	7	22	11	50.86	2.1308	5	38	26.9	11.507
8	20	31	27.98	2.1526	13	41	37.9	8.762	8	22	13	58.72	2.1312	5	26	55.3	11.545
9	20	33	37.10	2.1515	13	32	49.9	8.837	9	22	16	6.60	2.1316	5	15	21.5	11.582
10	20	35	46.16	2.1505	13	23	57.4	8.912	10	22	18	14.51	2.1322	5	3	45.4	11.619
11	20	37	55.16	2.1495	13	15	0.4	8.987	11	22	20	22.46	2.1327	4	52	7.2	11.654
12	20	40	4.10	2.1485	13	5	58.9	9.061	12	22	22	30.44	2.1333	4	40	26.9	11.689
13	20	42	12.98	2.1474	12	56	53.1	9.133	13	22	24	38.46	2.1341	4	28	44.5	11.723
14	20	44	21.79	2.1464	12	47	42.9	9.207	14	22	26	46.53	2.1348	4	17	0.1	11.757
15	20	46	30.55	2.1455	12	38	28.3	9.278	15	22	28	54.64	2.1356	4	5	13.7	11.788
16	20	48	39.25	2.1445	12	29	9.5	9.349	16	22	31	2.80	2.1364	3	53	25.5	11.819
17	20	50	47.89	2.1436	12	19	46.4	9.419	17	22	33	11.01	2.1373	3	41	35.4	11.849
18	20	52	56.48	2.1427	12	10	19.2	9.488	18	22	35	19.27	2.1383	3	29	43.6	11.877
19	20	55	5.01	2.1418	12	0	47.8	9.557	19	22	37	27.60	2.1393	3	17	50.1	11.906
20	20	57	13.49	2.1409	11	51	12.3	9.625	20	22	39	35.98	2.1403	3	5	54.9	11.933
21	20	59	21.92	2.1401	11	41	32.8	9.692	21	22	41	44.43	2.1413	2	53	58.1	11.959
22	21	1	30.30	2.1393	11	31	49.2	9.759	22	22	43	52.94	2.1424	2	41	59.8	11.984
23	21	3	38.63	2.1384	11	22	1.7	9.825	23	22	46	1.52	2.1436	2	30	0.0	12.008
24	21	5	46.91	2.1377	S. 11	12	10.2	9.890	24	22	48	10.17	2.1448	S. 2	17	58.9	12.030

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 9.					TUESDAY 11.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	22 48 10.17	2.1448	S. 2 17 58.9	12.030	0	0 33 36.20	2.2688	N. 7 25 29.3	11.828
1	22 50 18.90	2.1462	2 5 56.4	12.052	1	0 35 52.44	2.2727	7 37 18.0	11.795
2	22 52 27.71	2.1476	1 53 52.6	12.074	2	0 38 8.92	2.2766	7 49 4.7	11.759
3	22 54 36.61	2.1490	1 41 47.5	12.094	3	0 40 25.63	2.2805	8 0 49.1	11.721
4	22 56 45.59	2.1504	1 29 41.3	12.113	4	0 42 42.58	2.2845	8 12 31.2	11.683
5	22 58 54.66	2.1519	1 17 33.9	12.132	5	0 44 59.77	2.2885	8 24 11.0	11.643
6	23 1 3.82	2.1535	1 5 25.5	12.148	6	0 47 17.20	2.2925	8 35 48.4	11.602
7	23 3 13.08	2.1552	0 53 16.1	12.164	7	0 49 34.87	2.2966	8 47 23.2	11.558
8	23 5 22.44	2.1568	0 41 5.8	12.179	8	0 51 52.79	2.3007	8 58 55.4	11.514
9	23 7 31.90	2.1586	0 28 54.6	12.193	9	0 54 10.96	2.3048	9 10 24.9	11.469
10	23 9 41.47	2.1604	0 16 42.6	12.206	10	0 56 29.37	2.3090	9 21 51.7	11.423
11	23 11 51.15	2.1623	S. 0 4 29.9	12.217	11	0 58 48.04	2.3133	9 33 15.6	11.374
12	23 14 0.94	2.1642	N. 0 7 43.5	12.228	12	1 1 6.96	2.3175	9 44 36.6	11.324
13	23 16 10.85	2.1661	0 19 57.5	12.237	13	1 3 26.14	2.3218	9 55 54.5	11.273
14	23 18 20.87	2.1681	0 32 12.0	12.245	14	1 5 45.58	2.3262	10 7 9.3	11.221
15	23 20 31.02	2.1702	0 44 26.9	12.252	15	1 8 5.28	2.3305	10 18 21.0	11.168
16	23 22 41.30	2.1723	0 56 42.3	12.259	16	1 10 25.24	2.3348	10 29 29.4	11.112
17	23 24 51.70	2.1745	1 8 58.0	12.264	17	1 12 45.46	2.3393	10 40 34.4	11.054
18	23 27 2.24	2.1768	1 21 14.0	12.268	18	1 15 5.95	2.3438	10 51 35.9	10.996
19	23 29 12.91	2.1790	1 33 30.2	12.271	19	1 17 26.71	2.3483	11 2 33.9	10.937
20	23 31 23.72	2.1814	1 45 46.5	12.273	20	1 19 47.74	2.3527	11 13 28.3	10.875
21	23 33 34.68	2.1838	1 58 2.9	12.273	21	1 22 9.03	2.3572	11 24 18.9	10.812
22	23 35 45.78	2.1863	2 10 19.3	12.273	22	1 24 30.60	2.3618	11 35 5.7	10.748
23	23 37 57.03	2.1888	N. 2 22 35.7	12.272	23	1 26 52.44	2.3663	N. 11 45 48.7	10.683
MONDAY 10.					WEDNESDAY 12.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	23 40 8.43	2.1913	N. 2 34 51.9	12.268	0	1 29 14.55	2.3708	N. 11 56 27.7	10.616
1	23 42 19.99	2.1939	2 47 7.9	12.264	1	1 31 36.94	2.3754	12 7 2.6	10.548
2	23 44 31.70	2.1966	2 59 23.6	12.258	2	1 33 59.60	2.3800	12 17 33.4	10.478
3	23 46 43.58	2.1994	3 11 38.9	12.252	3	1 36 22.54	2.3847	12 27 59.9	10.406
4	23 48 55.63	2.2022	3 23 53.9	12.245	4	1 38 45.76	2.3893	12 38 22.1	10.333
5	23 51 7.84	2.2050	3 36 8.3	12.236	5	1 41 9.25	2.3938	12 48 39.9	10.259
6	23 53 20.23	2.2079	3 48 22.2	12.226	6	1 43 33.02	2.3985	12 58 53.2	10.183
7	23 55 32.79	2.2108	4 0 35.4	12.214	7	1 45 57.07	2.4032	13 9 1.9	10.106
8	23 57 45.53	2.2138	4 12 47.9	12.202	8	1 48 21.40	2.4078	13 19 5.9	10.028
9	23 59 58.45	2.2169	4 24 59.6	12.188	9	1 50 46.01	2.4124	13 29 5.2	9.948
10	0 2 11.56	2.2200	4 37 10.5	12.173	10	1 53 10.89	2.4170	13 38 59.6	9.865
11	0 4 24.85	2.2232	4 49 20.4	12.157	11	1 55 36.05	2.4217	13 48 49.0	9.782
12	0 6 38.34	2.2264	5 1 29.3	12.139	12	1 58 1.49	2.4263	13 58 33.4	9.698
13	0 8 52.02	2.2297	5 13 37.1	12.121	13	2 0 27.21	2.4310	14 8 12.7	9.612
14	0 11 5.90	2.2330	5 25 43.8	12.101	14	2 2 53.21	2.4356	14 17 46.8	9.524
15	0 13 19.98	2.2363	5 37 49.2	12.079	15	2 5 19.48	2.4402	14 27 15.6	9.436
16	0 15 34.26	2.2398	5 49 53.3	12.057	16	2 7 46.03	2.4448	14 36 39.1	9.346
17	0 17 48.75	2.2433	6 1 56.0	12.033	17	2 10 12.85	2.4493	14 45 57.1	9.253
18	0 20 3.45	2.2468	6 13 57.2	12.008	18	2 12 39.95	2.4539	14 55 9.5	9.160
19	0 22 18.36	2.2503	6 25 56.9	11.982	19	2 15 7.32	2.4585	15 4 16.3	9.065
20	0 24 33.49	2.2539	6 37 55.0	11.953	20	2 17 34.97	2.4631	15 13 17.3	8.969
21	0 26 48.83	2.2576	6 49 51.3	11.924	21	2 20 2.89	2.4676	15 22 12.6	8.872
22	0 29 4.40	2.2613	7 1 45.9	11.894	22	2 22 31.08	2.4720	15 31 2.0	8.773
23	0 31 20.19	2.2650	7 13 38.6	11.862	23	2 24 59.53	2.4764	15 39 45.4	8.673
24	0 33 36.20	2.2688	N. 7 25 29.3	11.828	24	2 27 28.25	2.4809	N. 15 48 22.8	8.572

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 13.					SATURDAY 15.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	2 27 28.25	2.4809	N. 15 48 22.8	8.572	0	4 30 35.14	2.6171	N. 20 20 6.4	2.383
1	2 29 57.24	2.4853	15 56 54.1	8.469	1	4 33 12.18	2.6175	20 22 25.3	2.241
2	2 32 26.49	2.4898	16 5 19.1	8.364	2	4 35 49.24	2.6178	20 24 35.3	2.093
3	2 34 56.01	2.4941	16 13 37.8	8.258	3	4 38 26.32	2.6180	20 26 36.5	1.946
4	2 37 25.78	2.4983	16 21 50.1	8.152	4	4 41 3.40	2.6180	20 28 28.8	1.798
5	2 39 55.81	2.5026	16 29 56.0	8.043	5	4 43 40.48	2.6180	20 30 12.3	1.652
6	2 42 26.09	2.5068	16 37 55.3	7.933	6	4 46 17.56	2.6179	20 31 47.0	1.504
7	2 44 56.63	2.5110	16 45 48.0	7.823	7	4 48 54.63	2.6176	20 33 12.8	1.356
8	2 47 27.41	2.5151	16 53 34.1	7.712	8	4 51 31.67	2.6172	20 34 29.7	1.208
9	2 49 58.44	2.5192	17 1 13.4	7.598	9	4 54 8.69	2.6167	20 35 37.8	1.061
10	2 52 29.71	2.5233	17 8 45.8	7.483	10	4 56 45.67	2.6160	20 36 37.0	0.913
11	2 55 1.23	2.5273	17 16 11.3	7.367	11	4 59 22.61	2.6153	20 37 27.3	0.764
12	2 57 32.98	2.5311	17 23 29.8	7.249	12	5 1 59.50	2.6143	20 38 8.7	0.617
13	3 0 4.96	2.5349	17 30 41.2	7.131	13	5 4 36.33	2.6133	20 38 41.3	0.470
14	3 2 37.17	2.5388	17 37 45.5	7.012	14	5 7 13.10	2.6122	20 39 5.1	0.323
15	3 5 9.61	2.5425	17 44 42.6	6.891	15	5 9 49.79	2.6108	20 39 20.0	0.175
16	3 7 42.27	2.5462	17 51 32.4	6.768	16	5 12 26.40	2.6094	20 39 26.1	+0.028
17	3 10 15.15	2.5498	17 58 14.8	6.645	17	5 15 2.92	2.6079	20 39 23.4	-0.118
18	3 12 48.24	2.5533	18 4 49.8	6.521	18	5 17 39.35	2.6063	20 39 11.9	0.265
19	3 15 21.54	2.5568	18 11 17.3	6.396	19	5 20 15.68	2.6046	20 38 51.6	0.412
20	3 17 55.05	2.5602	18 17 37.3	6.269	20	5 22 51.90	2.6027	20 38 22.5	0.558
21	3 20 28.76	2.5634	18 23 49.6	6.142	21	5 25 28.00	2.6007	20 37 44.7	0.703
22	3 23 2.66	2.5667	18 29 54.3	6.013	22	5 28 3.98	2.5986	20 36 58.2	0.848
23	3 25 36.76	2.5699	N. 18 35 51.2	5.883	23	5 30 39.83	2.5963	N. 20 36 3.0	0.992
FRIDAY 14.					SUNDAY 16.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	3 28 11.05	2.5730	N. 18 41 40.3	5.753	0	5 33 15.54	2.5940	N. 20 34 59.1	1.137
1	3 30 45.52	2.5759	18 47 21.6	5.622	1	5 35 51.11	2.5915	20 33 46.6	1.280
2	3 33 20.16	2.5788	18 52 54.9	5.489	2	5 38 26.52	2.5889	20 32 25.5	1.423
3	3 35 54.97	2.5816	18 58 20.3	5.356	3	5 41 1.78	2.5863	20 30 55.8	1.566
4	3 38 29.95	2.5843	19 3 37.6	5.221	4	5 43 36.87	2.5834	20 29 17.6	1.708
5	3 41 5.09	2.5869	19 8 46.8	5.086	5	5 46 11.79	2.5805	20 27 30.8	1.850
6	3 43 40.38	2.5894	19 13 47.9	4.950	6	5 48 46.53	2.5775	20 25 35.6	1.990
7	3 46 15.82	2.5919	19 18 40.8	4.813	7	5 51 21.09	2.5743	20 23 32.0	2.130
8	3 48 51.41	2.5943	19 23 25.5	4.676	8	5 53 55.45	2.5711	20 21 20.0	2.270
9	3 51 27.13	2.5965	19 28 1.9	4.537	9	5 56 29.62	2.5678	20 18 59.6	2.409
10	3 54 2.99	2.5987	19 32 29.9	4.398	10	5 59 3.59	2.5644	20 16 30.9	2.547
11	3 56 38.97	2.6006	19 36 49.6	4.258	11	6 1 37.35	2.5608	20 13 54.0	2.683
12	3 59 15.06	2.6025	19 41 0.8	4.117	12	6 4 10.88	2.5570	20 11 8.9	2.819
13	4 1 51.27	2.6044	19 45 3.6	3.976	13	6 6 44.19	2.5533	20 8 15.7	2.955
14	4 4 27.59	2.6062	19 48 57.9	3.833	14	6 9 17.28	2.5496	20 5 14.3	3.090
15	4 7 4.01	2.6078	19 52 43.6	3.691	15	6 11 50.14	2.5456	20 2 4.9	3.223
16	4 9 40.52	2.6092	19 56 20.8	3.548	16	6 14 22.75	2.5415	19 58 47.5	3.357
17	4 12 17.11	2.6106	19 59 49.4	3.405	17	6 16 55.12	2.5374	19 55 22.1	3.489
18	4 14 53.79	2.6119	20 3 9.4	3.261	18	6 19 27.24	2.5333	19 51 48.8	3.620
19	4 17 30.54	2.6131	20 6 20.7	3.116	19	6 21 59.11	2.5290	19 48 7.7	3.750
20	4 20 7.36	2.6141	20 9 23.3	2.971	20	6 24 30.72	2.5246	19 44 18.8	3.879
21	4 22 44.23	2.6150	20 12 17.2	2.826	21	6 27 2.06	2.5201	19 40 22.2	4.008
22	4 25 21.16	2.6158	20 15 2.4	2.680	22	6 29 33.13	2.5156	19 36 17.9	4.135
23	4 27 58.13	2.6165	20 17 38.8	2.533	23	6 32 3.93	2.5109	19 32 6.0	4.262
24	4 30 35.14	2.6171	N. 20 20 6.4	2.388	24	6 34 34.44	2.5062	N. 19 27 46.5	4.387

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 17.					WEDNESDAY 19.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	6 34 34.44	2.5062	N.19 27 46.5	4.387	0	8 28 33.11	2.2345	N.13 55 51.8	8.955
1	6 37 4.67	2.5015	19 23 19.6	4.510	1	8 30 47.01	2.2288	13 46 52.6	9.018
2	6 39 34.62	2.4967	19 18 45.3	4.633	2	8 33 0.56	2.2229	13 37 49.6	9.082
3	6 42 4.27	2.4918	19 14 3.6	4.755	3	8 35 13.76	2.2172	13 28 42.8	9.143
4	6 44 33.63	2.4868	19 9 14.7	4.876	4	8 37 26.62	2.2115	13 19 32.4	9.203
5	6 47 2.68	2.4817	19 4 18.5	4.996	5	8 39 39.14	2.2058	13 10 18.5	9.262
6	6 49 31.43	2.4766	18 59 15.2	5.114	6	8 41 51.32	2.2002	13 1 1.0	9.320
7	6 51 59.87	2.4714	18 54 4.8	5.232	7	8 44 3.16	2.1945	12 51 40.1	9.376
8	6 54 28.00	2.4662	18 48 47.4	5.348	8	8 46 14.66	2.1889	12 42 15.9	9.431
9	6 56 55.82	2.4610	18 43 23.1	5.463	9	8 48 25.83	2.1834	12 32 48.4	9.485
10	6 59 23.32	2.4556	18 37 51.9	5.577	10	8 50 36.67	2.1778	12 23 17.7	9.538
11	7 1 50.49	2.4503	18 32 13.9	5.688	11	8 52 47.17	2.1723	12 13 43.8	9.590
12	7 4 17.35	2.4449	18 26 29.3	5.799	12	8 54 57.34	2.1668	12 4 6.9	9.640
13	7 6 43.88	2.4393	18 20 38.0	5.910	13	8 57 7.19	2.1614	11 54 27.0	9.689
14	7 9 10.07	2.4338	18 14 40.1	6.019	14	8 59 16.71	2.1560	11 44 44.2	9.738
15	7 11 35.93	2.4282	18 8 35.7	6.127	15	9 1 25.91	2.1507	11 34 58.5	9.785
16	7 14 1.45	2.4226	18 2 24.9	6.233	16	9 3 34.79	2.1453	11 25 10.0	9.831
17	7 16 26.64	2.4170	17 56 7.8	6.338	17	9 5 43.35	2.1401	11 15 18.8	9.876
18	7 18 51.49	2.4113	17 49 44.4	6.442	18	9 7 51.60	2.1348	11 5 24.9	9.920
19	7 21 16.00	2.4056	17 43 14.8	6.544	19	9 9 59.53	2.1297	10 55 28.4	9.963
20	7 23 40.16	2.3998	17 36 39.1	6.645	20	9 12 7.16	2.1246	10 45 29.4	10.003
21	7 26 3.97	2.3940	17 29 57.4	6.745	21	9 14 14.48	2.1194	10 35 28.0	10.043
22	7 28 27.44	2.3883	17 23 9.7	6.844	22	9 16 21.49	2.1143	10 25 24.2	10.083
23	7 30 50.56	2.3824	N.17 16 16.1	6.942	23	9 18 28.20	2.1094	N.10 15 18.0	10.122
TUESDAY 18.					THURSDAY 20.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	7 33 13.33	2.3766	N.17 9 16.6	7.038	0	9 20 34.62	2.1045	N.10 5 9.6	10.158
1	7 35 35.75	2.3707	17 2 11.5	7.133	1	9 22 40.74	2.0995	9 54 59.0	10.195
2	7 37 57.81	2.3648	16 55 0.7	7.227	2	9 24 46.56	2.0946	9 44 46.2	10.230
3	7 40 19.52	2.3589	16 47 44.3	7.319	3	9 26 52.09	2.0898	9 34 31.4	10.261
4	7 42 40.88	2.3530	16 40 22.4	7.410	4	9 28 57.34	2.0851	9 24 14.5	10.298
5	7 45 1.88	2.3470	16 32 55.1	7.499	5	9 31 2.30	2.0803	9 13 55.7	10.329
6	7 47 22.52	2.3411	16 25 22.5	7.588	6	9 33 6.98	2.0757	9 3 35.0	10.360
7	7 49 42.81	2.3352	16 17 44.6	7.674	7	9 35 11.38	2.0711	8 53 12.5	10.390
8	7 52 2.74	2.3292	16 10 1.6	7.759	8	9 37 15.51	2.0665	8 42 48.2	10.419
9	7 54 22.31	2.3232	16 2 13.5	7.844	9	9 39 19.36	2.0620	8 32 22.2	10.447
10	7 56 41.52	2.3173	15 54 20.3	7.928	10	9 41 22.95	2.0576	8 21 54.6	10.474
11	7 59 0.38	2.3113	15 46 22.1	8.010	11	9 43 26.27	2.0531	8 11 25.3	10.500
12	8 1 18.88	2.3053	15 38 19.1	8.090	12	9 45 29.32	2.0488	8 0 54.6	10.524
13	8 3 37.02	2.2993	15 30 11.3	8.169	13	9 47 32.12	2.0445	7 50 22.4	10.549
14	8 5 54.80	2.2934	15 21 58.8	8.247	14	9 49 34.66	2.0402	7 39 48.7	10.573
15	8 8 12.23	2.2875	15 13 41.7	8.323	15	9 51 36.94	2.0360	7 29 13.7	10.595
16	8 10 29.30	2.2816	15 5 20.0	8.398	16	9 53 38.98	2.0319	7 18 37.3	10.617
17	8 12 46.02	2.2757	14 56 53.9	8.472	17	9 55 40.77	2.0278	7 7 59.7	10.637
18	8 15 2.38	2.2697	14 48 23.4	8.545	18	9 57 42.31	2.0238	6 57 20.9	10.657
19	8 17 18.38	2.2638	14 39 48.5	8.618	19	9 59 43.62	2.0198	6 46 40.9	10.675
20	8 19 34.03	2.2579	14 31 9.3	8.688	20	10 1 44.69	2.0159	6 35 59.9	10.693
21	8 21 49.33	2.2521	14 22 26.0	8.756	21	10 3 45.53	2.0121	6 25 17.8	10.709
22	8 24 4.28	2.2462	14 13 38.6	8.823	22	10 5 46.14	2.0083	6 14 34.8	10.725
23	8 26 18.87	2.2403	14 4 47.2	8.890	23	10 7 46.53	2.0046	6 3 50.8	10.741
24	8 28 33.11	2.2345	N.13 55 51.8	8.955	24	10 9 46.69	2.0008	N. 5 53 5.9	10.755

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 21.					SUNDAY 23.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	10 9 46.69	2.0008	N. 5 53 5.9	10.755	0	11 42 41.91	1.8936	S. 2 45 12.8	10.580
1	10 11 46.63	1.9972	5 42 20.2	10.768	1	11 44 35.50	1.8928	2 55 47.0	10.560
2	10 13 46.36	1.9937	5 31 33.7	10.781	2	11 46 29.04	1.8920	3 6 20.0	10.540
3	10 15 45.87	1.9901	5 20 46.5	10.793	3	11 48 22.54	1.8913	3 16 51.8	10.519
4	10 17 45.17	1.9867	5 9 58.6	10.804	4	11 50 16.00	1.8907	3 27 22.3	10.498
5	10 19 44.27	1.9833	4 59 10.0	10.814	5	11 52 9.42	1.8901	3 37 51.6	10.477
6	10 21 43.17	1.9800	4 48 20.9	10.823	6	11 54 2.81	1.8896	3 48 19.6	10.455
7	10 23 41.87	1.9767	4 37 31.2	10.832	7	11 55 56.17	1.8892	3 58 46.2	10.432
8	10 25 40.37	1.9734	4 26 41.0	10.840	8	11 57 49.51	1.8887	4 9 11.4	10.408
9	10 27 38.68	1.9703	4 15 50.4	10.847	9	11 59 42.82	1.8883	4 19 35.2	10.384
10	10 29 36.81	1.9673	4 4 59.4	10.853	10	12 1 36.11	1.8881	4 29 57.5	10.360
11	10 31 34.75	1.9642	3 54 8.0	10.858	11	12 3 29.39	1.8878	4 40 18.4	10.336
12	10 33 32.51	1.9613	3 43 16.4	10.863	12	12 5 22.65	1.8876	4 50 37.8	10.310
13	10 35 30.10	1.9583	3 32 24.5	10.868	13	12 7 15.90	1.8875	5 0 55.6	10.284
14	10 37 27.51	1.9554	3 21 32.3	10.871	14	12 9 9.15	1.8874	5 11 11.9	10.258
15	10 39 24.75	1.9526	3 10 40.0	10.873	15	12 11 2.39	1.8873	5 21 26.5	10.230
16	10 41 21.82	1.9498	2 59 47.6	10.874	16	12 12 55.63	1.8874	5 31 39.5	10.203
17	10 43 18.73	1.9472	2 48 55.1	10.876	17	12 14 48.88	1.8875	5 41 50.8	10.174
18	10 45 15.49	1.9447	2 38 2.5	10.877	18	12 16 42.13	1.8876	5 52 0.4	10.146
19	10 47 12.09	1.9421	2 27 9.9	10.876	19	12 18 35.39	1.8878	6 2 8.3	10.117
20	10 49 8.54	1.9396	2 16 17.4	10.875	20	12 20 28.66	1.8880	6 12 14.4	10.087
21	10 51 4.84	1.9372	2 5 24.9	10.873	21	12 22 21.95	1.8883	6 22 18.7	10.057
22	10 53 1.00	1.9348	1 54 32.6	10.870	22	12 24 15.25	1.8886	6 32 21.2	10.026
23	10 54 57.01	1.9324	N. 1 43 40.5	10.867	23	12 26 8.58	1.8890	S. 6 42 21.8	9.994
SATURDAY 22.					MONDAY 24.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	10 56 52.89	1.9302	N. 1 32 48.6	10.863	0	12 28 1.93	1.8894	S. 6 52 20.5	9.962
1	10 58 48.63	1.9279	21 57.0	10.858	1	12 29 55.31	1.8899	7 2 17.2	9.929
2	11 0 44.24	1.9258	1 11 5.6	10.853	2	12 31 48.72	1.8904	7 12 12.0	9.897
3	11 2 39.73	1.9238	1 0 14.6	10.848	3	12 33 42.16	1.8910	7 22 4.8	9.863
4	11 4 35.09	1.9217	0 49 23.9	10.842	4	12 35 35.64	1.8917	7 31 55.5	9.828
5	11 6 30.33	1.9198	0 38 33.6	10.834	5	12 37 29.16	1.8923	7 41 44.2	9.794
6	11 8 25.46	1.9178	0 27 43.8	10.826	6	12 39 22.72	1.8931	7 51 30.8	9.758
7	11 10 20.47	1.9160	0 16 54.5	10.818	7	12 41 16.33	1.8938	8 1 15.2	9.723
8	11 12 15.38	1.9142	N. 0 6 5.7	10.808	8	12 43 9.98	1.8947	8 10 57.5	9.687
9	11 14 10.18	1.9124	S. 0 4 42.5	10.799	9	12 45 3.69	1.8956	8 20 37.6	9.650
10	11 16 4.87	1.9108	0 15 30.2	10.789	10	12 46 57.45	1.8965	8 30 15.5	9.613
11	11 17 59.47	1.9093	0 26 17.2	10.777	11	12 48 51.27	1.8975	8 39 51.2	9.575
12	11 19 53.98	1.9077	0 37 3.4	10.765	12	12 50 45.15	1.8985	8 49 24.5	9.536
13	11 21 48.39	1.9062	0 47 49.0	10.753	13	12 52 39.09	1.8996	8 58 55.5	9.498
14	11 23 42.72	1.9048	0 58 33.8	10.741	14	12 54 33.10	1.9008	9 8 24.2	9.458
15	11 25 36.96	1.9033	1 9 17.9	10.728	15	12 56 27.18	1.9019	9 17 50.5	9.418
16	11 27 31.12	1.9020	1 20 1.1	10.713	16	12 58 21.33	1.9031	9 27 14.3	9.377
17	11 29 25.20	1.9008	1 30 43.4	10.698	17	13 0 15.55	1.9043	9 36 35.7	9.337
18	11 31 19.21	1.8996	1 41 24.9	10.683	18	13 2 9.85	1.9057	9 45 54.7	9.295
19	11 33 13.15	1.8984	1 52 5.4	10.668	19	13 4 4.23	1.9070	9 55 11.1	9.253
20	11 35 7.02	1.8973	2 2 45.0	10.651	20	13 5 58.69	1.9083	10 4 25.0	9.210
21	11 37 0.83	1.8963	2 13 23.5	10.633	21	13 7 53.23	1.9098	10 13 36.3	9.167
22	11 38 54.58	1.8953	2 24 1.0	10.616	22	13 9 47.86	1.9113	10 22 45.0	9.123
23	11 40 48.27	1.8944	2 34 37.4	10.598	23	13 11 42.58	1.9127	10 31 51.1	9.079
24	11 42 41.91	1.8936	S. 2 45 12.8	10.580	24	13 13 37.38	1.9142	S. 10 40 54.5	9.034

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 25.					THURSDAY 27.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	13 13 37.38	1.9142	S. 10 40 54.5	9.034	0	14 47 58.03	2.0275	S. 16 52 17.4	6.222
1	13 15 32.28	1.9158	10 49 55.2	8.988	1	14 49 59.77	2.0304	16 58 28.5	6.148
2	13 17 27.28	1.9175	10 58 53.1	8.943	2	14 52 1.68	2.0333	17 4 35.2	6.075
3	13 19 22.38	1.9192	11 7 48.3	8.897	3	14 54 3.77	2.0363	17 10 37.5	6.001
4	13 21 17.58	1.9209	11 16 40.7	8.849	4	14 56 6.03	2.0392	17 16 35.3	5.927
5	13 23 12.89	1.9228	11 25 30.2	8.802	5	14 58 8.47	2.0421	17 22 28.7	5.852
6	13 25 8.31	1.9245	11 34 16.9	8.753	6	15 0 11.08	2.0450	17 28 17.5	5.776
7	13 27 3.83	1.9263	11 43 0.6	8.704	7	15 2 13.87	2.0480	17 34 1.8	5.700
8	13 28 59.46	1.9281	11 51 41.4	8.655	8	15 4 16.84	2.0509	17 39 41.5	5.623
9	13 30 55.20	1.9300	12 0 19.2	8.606	9	15 6 19.98	2.0538	17 45 16.6	5.546
10	13 32 51.06	1.9320	12 8 54.1	8.556	10	15 8 23.30	2.0568	17 50 47.0	5.468
11	13 34 47.04	1.9339	12 17 25.9	8.504	11	15 10 26.80	2.0598	17 56 12.7	5.388
12	13 36 43.13	1.9359	12 25 54.6	8.453	12	15 12 30.48	2.0628	18 1 33.6	5.309
13	13 38 39.35	1.9380	12 34 20.2	8.401	13	15 14 34.34	2.0658	18 6 49.8	5.230
14	13 40 35.69	1.9401	12 42 42.7	8.349	14	15 16 38.37	2.0687	18 12 1.2	5.150
15	13 42 32.16	1.9423	12 51 2.1	8.296	15	15 18 42.58	2.0717	18 17 7.8	5.069
16	13 44 28.76	1.9444	12 59 18.2	8.242	16	15 20 46.97	2.0746	18 22 9.5	4.988
17	13 46 25.49	1.9466	13 7 31.1	8.188	17	15 22 51.53	2.0775	18 27 6.3	4.905
18	13 48 22.35	1.9488	13 15 40.7	8.133	18	15 24 56.27	2.0805	18 31 58.1	4.823
19	13 50 19.35	1.9511	13 23 47.0	8.078	19	15 27 1.19	2.0835	18 36 45.0	4.740
20	13 52 16.48	1.9533	13 31 50.0	8.021	20	15 29 6.29	2.0864	18 41 26.9	4.656
21	13 54 13.75	1.9557	13 39 49.5	7.964	21	15 31 11.56	2.0893	18 46 3.7	4.572
22	13 56 11.16	1.9580	13 47 45.7	7.908	22	15 33 17.00	2.0922	18 50 35.5	4.488
23	13 58 8.71	1.9604	S. 13 55 38.4	7.850	23	15 35 22.62	2.0952	S. 18 55 2.2	4.402
WEDNESDAY 26.					FRIDAY 28.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	14 0 6.41	1.9628	S. 14 3 27.7	7.792	0	15 37 28.42	2.0981	S. 18 59 23.7	4.316
1	14 2 4.25	1.9653	14 11 13.5	7.733	1	15 39 34.39	2.1009	19 3 40.1	4.229
2	14 4 2.24	1.9678	14 18 55.7	7.673	2	15 41 40.53	2.1038	19 7 51.2	4.142
3	14 6 0.38	1.9702	14 26 34.3	7.613	3	15 43 46.85	2.1068	19 11 57.1	4.055
4	14 7 58.66	1.9727	14 34 9.3	7.553	4	15 45 53.34	2.1096	19 15 57.8	3.967
5	14 9 57.10	1.9753	14 41 40.7	7.493	5	15 48 0.00	2.1124	19 19 53.2	3.878
6	14 11 55.69	1.9778	14 49 8.4	7.431	6	15 50 6.83	2.1152	19 23 43.2	3.789
7	14 13 54.44	1.9805	14 56 32.4	7.368	7	15 52 13.82	2.1180	19 27 27.9	3.700
8	14 15 53.35	1.9831	15 3 52.6	7.306	8	15 54 20.99	2.1208	19 31 7.2	3.609
9	14 17 52.41	1.9857	15 11 9.1	7.243	9	15 56 28.32	2.1235	19 34 41.0	3.518
10	14 19 51.63	1.9883	15 18 21.7	7.178	10	15 58 35.81	2.1263	19 38 9.4	3.427
11	14 21 51.01	1.9910	15 25 30.5	7.113	11	16 0 43.47	2.1291	19 41 32.3	3.335
12	14 23 50.55	1.9937	15 32 35.3	7.048	12	16 2 51.30	2.1318	19 44 49.6	3.243
13	14 25 50.25	1.9964	15 39 36.2	6.983	13	16 4 59.29	2.1345	19 48 1.4	3.151
14	14 27 50.12	1.9992	15 46 33.2	6.917	14	16 7 7.44	2.1372	19 51 7.7	3.058
15	14 29 50.15	2.0019	15 53 26.2	6.849	15	16 9 15.75	2.1398	19 54 8.4	2.964
16	14 31 50.35	2.0048	16 0 15.1	6.782	16	16 11 24.22	2.1425	19 57 3.4	2.870
17	14 33 50.72	2.0075	16 7 0.0	6.714	17	16 13 32.85	2.1451	19 59 52.8	2.776
18	14 35 51.25	2.0103	16 13 40.8	6.645	18	16 15 41.63	2.1476	20 2 36.5	2.681
19	14 37 51.95	2.0131	16 20 17.4	6.576	19	16 17 50.56	2.1502	20 5 14.5	2.585
20	14 39 52.82	2.0159	16 26 49.9	6.507	20	16 19 59.65	2.1527	20 7 46.7	2.489
21	14 41 53.86	2.0188	16 33 18.2	6.436	21	16 22 8.88	2.1552	20 10 13.2	2.393
22	14 43 55.08	2.0218	16 39 42.2	6.364	22	16 24 18.27	2.1577	20 12 33.9	2.296
23	14 45 56.47	2.0246	16 46 1.9	6.293	23	16 26 27.80	2.1600	20 14 48.7	2.198
24	14 47 58.03	2.0275	S. 16 52 17.4	6.222	24	16 28 37.47	2.1624	S. 20 16 57.7	2.102

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 29.					MONDAY, JULY 1.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	16 28 37.47	2.1624	S. 20 16 57.7	2.102	18	14 27.00	2.2302	S. 19 59 25.7	2.902
1	16 30 47.29	2.1648	20 19 0.9	2.003	PHASES OF THE MOON.				
2	16 32 57.25	2.1672	20 20 58.1	1.904					
3	16 35 7.35	2.1694	20 22 49.4	1.806					
4	16 37 17.58	2.1717	20 24 34.8	1.707					
5	16 39 27.95	2.1739	20 26 14.2	1.607					
6	16 41 38.45	2.1762	20 27 47.6	1.507					
7	16 43 49.00	2.1783	20 29 15.1	1.408					
8	16 45 59.85	2.1804	20 30 36.5	1.306					
9	16 48 10.74	2.1825	20 31 51.8	1.204					
10	16 50 21.75	2.1846	20 33 1.0	1.103					
11	16 52 32.89	2.1866	20 34 4.1	1.001					
12	16 54 44.14	2.1885	20 35 1.1	0.899					
13	16 56 55.51	2.1905	20 35 52.0	0.797					
14	16 59 7.00	2.1924	20 36 36.7	0.694					
15	17 1 18.60	2.1943	20 37 15.3	0.591					
16	17 3 30.31	2.1961	20 37 47.6	0.488					
17	17 5 42.13	2.1978	20 38 13.8	0.384					
18	17 7 54.05	2.1995	20 38 33.7	0.280					
19	17 10 6.07	2.2012	20 38 47.4	0.177					
20	17 12 18.19	2.2028	20 38 54.9	-0.073	☉ Full Moon June 1 21 52.7 ☾ Last Quarter 9 9 59.9 ● New Moon 16 1 32.9 ☾ First Quarter 23 8 58.9				
21	17 14 30.41	2.2045	20 38 56.1	+0.032					
22	17 16 42.73	2.2061	20 38 51.0	0.138					
23	17 18 55.14	2.2075	S. 20 38 39.6	0.243					
SUNDAY 30.					☾ Perigee June 13 23.2 ☾ Apogee 25 21.2				
0	17 21 7.63	2.2089	S. 20 38 21.9	0.348					
1	17 23 20.21	2.2104	20 37 57.9	0.453					
2	17 25 32.88	2.2118	20 37 27.5	0.559					
3	17 27 45.63	2.2131	20 36 50.8	0.664					
4	17 29 58.45	2.2143	20 36 7.8	0.770					
5	17 32 11.35	2.2157	20 35 18.4	0.876					
6	17 34 24.33	2.2168	20 34 22.7	0.982					
7	17 36 37.37	2.2179	20 33 20.6	1.088					
8	17 38 50.48	2.2190	20 32 12.1	1.195					
9	17 41 3.65	2.2201	20 30 57.2	1.302					
10	17 43 16.89	2.2211	20 29 35.9	1.408					
11	17 45 30.18	2.2219	20 28 8.2	1.514					
12	17 47 43.52	2.2228	20 26 34.2	1.621					
13	17 49 56.92	2.2238	20 24 53.7	1.728					
14	17 52 10.37	2.2246	20 23 6.9	1.834					
15	17 54 23.87	2.2253	20 21 13.6	1.942					
16	17 56 37.41	2.2260	20 19 13.9	2.049					
17	17 58 50.99	2.2267	20 17 7.7	2.156					
18	18 1 4.61	2.2273	20 14 55.2	2.262					
19	18 3 18.27	2.2279	20 12 36.3	2.368					
20	18 5 31.96	2.2284	20 10 11.0	2.476					
21	18 7 45.68	2.2289	20 7 39.2	2.583					
22	18 9 59.43	2.2293	20 5 1.1	2.688					
23	18 12 13.20	2.2298	20 2 16.6	2.795					
24	18 14 27.00	2.2302	S. 19 59 25.7	2.902					

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.			P. L. of Diff.	IIIh.			P. L. of Diff.	VIh.			P. L. of Diff.	IXh.			P. L. of Diff.
			°	'	"		°	'	"		°	'	"		°	'	"	
1	Regulus	W.	91	40	3	3008	93	10	6	3001	94	40	17	2995	96	10	36	2989
	MARS	W.	81	45	49	3176	83	12	27	3169	84	39	13	3163	86	6	7	3157
	Spica	W.	37	45	16	2986	39	15	46	2980	40	46	23	2974	42	17	8	2968
	JUPITER	E.	41	24	51	2976	39	54	8	2972	38	23	20	2967	36	52	26	2963
	SATURN	E.	45	14	35	2985	43	44	4	2980	42	13	26	2975	40	42	42	2970
	α Pegasi	E.	110	25	31	3152	108	58	24	3143	107	31	7	3134	106	3	39	3125
2	Regulus	W.	103	44	6	2958	105	15	12	2951	106	46	27	2944	108	17	50	2938
	MARS	W.	93	22	33	3123	94	50	15	3116	96	18	5	3109	97	46	4	3102
	Spica	W.	49	52	55	2935	51	24	30	2928	52	56	13	2921	54	28	5	2913
	SATURN	E.	33	7	30	2947	31	36	11	2943	30	4	46	2939	28	33	16	2935
	α Pegasi	E.	98	43	44	3064	97	15	15	3076	95	46	36	3068	94	17	48	3060
3	MARS	W.	105	8	8	3065	106	37	0	3058	108	6	0	3051	109	35	9	3043
	Spica	W.	62	9	45	2877	63	42	33	2869	65	15	31	2862	66	48	38	2854
	α Pegasi	E.	86	51	29	3024	85	21	46	3018	83	51	55	3011	82	21	56	3004
4	Spica	W.	74	36	49	2815	76	10	58	2807	77	45	17	2798	79	19	48	2790
	Antares	W.	29	39	11	2908	31	11	20	2892	32	43	49	2876	34	16	38	2862
	α Pegasi	E.	74	49	59	2973	73	19	13	2968	71	48	21	2963	70	17	22	2958
	α Arietis	E.	118	6	6	2876	116	33	16	2866	115	0	13	2855	113	26	57	2845
5	Spica	W.	87	15	6	2747	88	50	44	2738	90	26	32	2729	92	2	33	2720
	Antares	W.	42	5	6	2798	43	39	36	2787	45	14	21	2775	46	49	22	2764
	α Pegasi	E.	62	40	59	2938	61	9	28	2935	59	37	54	2932	58	6	16	2931
	α Arietis	E.	105	37	28	2798	104	2	57	2788	102	28	14	2779	100	53	18	2769
6	Spica	W.	100	5	39	2674	101	42	54	2665	103	20	21	2655	104	58	1	2645
	Antares	W.	54	48	4	2709	56	24	32	2698	58	1	15	2687	59	38	12	2676
	JUPITER	W.	21	53	8	2706	23	29	40	2689	25	6	35	2673	26	43	51	2658
	SATURN	W.	17	51	48	2739	19	27	36	2720	21	3	49	2702	22	40	25	2684
	α Pegasi	E.	50	27	53	2931	48	56	17	2938	47	24	46	2943	45	53	20	2950
	α Arietis	E.	92	55	32	2722	91	19	21	2712	89	42	57	2702	88	6	20	2693
	SUN	E.	132	25	43	3009	130	55	42	3000	129	25	29	2989	127	55	2	2978
7	Antares	W.	67	46	35	2622	69	25	0	2612	71	3	39	2601	72	42	34	2590
	JUPITER	W.	34	55	7	2590	36	34	16	2577	38	13	42	2564	39	53	26	2552
	SATURN	W.	30	49	11	2608	32	27	55	2595	34	6	57	2583	35	46	16	2569
	α Arietis	E.	80	0	3	2614	78	22	8	2635	76	44	1	2629	75	5	40	2615
	SUN	E.	120	19	24	2924	118	47	36	2912	117	15	33	2901	115	43	16	2890
8	Antares	W.	81	0	53	2531	82	41	19	2523	84	22	0	2511	86	2	57	2499
	JUPITER	W.	48	16	15	2492	49	57	39	2481	51	39	19	2469	53	21	16	2457
	SATURN	W.	44	7	12	2508	45	48	14	2496	47	29	32	2484	49	11	8	2472
	α Arietis	E.	66	50	35	2567	65	10	54	2558	63	31	1	2548	61	50	55	2539
	SUN	E.	107	58	6	2832	106	24	20	2820	104	50	18	2808	103	16	1	2796
9	Antares	W.	94	31	42	2444	96	14	14	2433	97	57	2	2422	99	40	6	2410
	JUPITER	W.	61	55	12	2398	63	38	50	2386	65	22	44	2374	67	6	56	2363
	SATURN	W.	57	43	19	2412	59	26	36	2401	61	10	9	2389	62	54	0	2378
	α Arietis	E.	53	27	16	2496	51	45	57	2488	50	4	27	2481	48	22	47	2474
	SUN	E.	95	20	36	2735	93	44	43	2723	92	8	34	2710	90	32	8	2698

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	Regulus	W.	97 41 2	2983	99 11 36	2977	100 42 18	2970	102 13 8	2964
	MARS	W.	87 33 8	3150	89 0 17	3143	90 27 34	3137	91 54 59	3129
	Spica	W.	43 48 1	2962	45 19 2	2955	46 50 11	2948	48 21 29	2942
	JUPITER	E.	35 21 27	2958	33 50 22	2954	32 19 12	2951	30 47 57	2948
	SATURN	E.	39 11 52	2965	37 40 56	2960	36 9 53	2955	34 38 44	2951
	α Pegasi	E.	104 36 0	3117	103 8 11	3109	101 40 12	3101	100 12 3	3092
2	Regulus	W.	109 49 21	2931	111 21 1	2924	112 52 49	2917	114 24 46	2910
	MARS	W.	99 14 11	3095	100 42 27	3087	102 10 52	3080	103 39 26	3073
	Spica	W.	56 0 7	2906	57 32 18	2899	59 4 37	2892	60 37 6	2884
	SATURN	E.	27 1 42	2934	25 30 6	2932	23 58 28	2931	22 26 48	2929
	α Pegasi	E.	92 48 50	3053	91 19 43	3046	89 50 28	3039	88 21 3	3031
3	MARS	W.	111 4 28	3036	112 33 56	3029	114 3 33	3022	115 33 19	3014
	Spica	W.	68 21 56	2846	69 55 24	2838	71 29 2	2830	73 2 50	2822
	α Pegasi	E.	80 51 48	2997	79 21 32	2991	77 51 9	2985	76 20 38	2979
4	Spica	W.	80 54 29	2781	82 29 21	2772	84 4 25	2764	85 39 40	2756
	Antares	W.	35 49 45	2848	37 23 10	2835	38 56 52	2822	40 30 51	2810
	α Pegasi	E.	68 46 16	2954	67 15 5	2949	65 43 48	2945	64 12 26	2941
	α Arietis	E.	111 53 28	2836	110 19 47	2826	108 45 53	2817	107 11 47	2807
5	Spica	W.	93 38 46	2711	95 15 10	2702	96 51 47	2692	98 28 37	2683
	Antares	W.	48 24 37	2753	50 0 7	2742	51 35 51	2731	53 11 50	2720
	α Pegasi	E.	56 34 36	2930	55 2 55	2930	53 31 14	2930	51 59 33	2931
	α Arietis	E.	99 18 10	2760	97 42 49	2750	96 7 16	2741	94 31 30	2732
6	Spica	W.	106 35 55	2635	108 14 2	2625	109 52 22	2615	111 30 56	2605
	Antares	W.	61 15 24	2666	62 52 50	2655	64 30 30	2644	66 8 25	2633
	JUPITER	W.	28 21 28	2643	29 59 25	2629	31 37 41	2615	33 16 15	2602
	SATURN	W.	24 17 26	2666	25 54 51	2650	27 32 39	2635	29 10 46	2621
	α Pegasi	E.	44 22 3	2958	42 50 57	2969	41 20 4	2982	39 49 27	2997
	α Arietis	E.	86 29 31	2683	84 52 28	2674	83 15 13	2664	81 37 44	2654
	SUN	E.	126 24 21	2967	124 53 27	2957	123 22 20	2946	121 50 59	2935
7	Antares	W.	74 21 43	2579	76 1 7	2567	77 40 47	2556	79 20 42	2545
	JUPITER	W.	41 33 27	2540	43 13 44	2528	44 54 17	2516	46 35 8	2504
	SATURN	W.	37 25 53	2557	39 5 47	2545	40 45 58	2532	42 26 27	2520
	α Arietis	E.	73 27 5	2605	71 48 17	2596	70 9 17	2586	68 30 2	2577
	SUN	E.	114 10 44	2878	112 37 57	2866	111 4 55	2855	109 31 38	2843
8	Antares	W.	87 44 11	2488	89 25 40	2477	91 7 25	2466	92 49 25	2455
	JUPITER	W.	55 3 30	2445	56 46 0	2433	58 28 47	2422	60 11 51	2410
	SATURN	W.	50 53 1	2460	52 35 10	2448	54 17 36	2436	56 0 19	2424
	α Arietis	E.	60 10 36	2530	58 30 4	2521	56 49 20	2512	55 8 24	2504
	SUN	E.	101 41 28	2784	100 6 39	2772	98 31 34	2760	96 56 13	2747
9	Antares	W.	101 23 26	2399	103 7 2	2388	104 50 54	2376	106 35 3	2365
	JUPITER	W.	68 51 24	2351	70 36 9	2339	72 21 11	2328	74 6 30	2316
	SATURN	W.	64 38 7	2365	66 22 32	2354	68 7 13	2342	69 52 11	2331
	α Arietis	E.	46 40 57	2467	44 58 58	2462	43 16 52	2458	41 34 39	2454
	SUN	E.	88 55 26	2686	87 18 28	2674	85 41 13	2662	84 3 42	2650

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
10	JUPITER	W.	75 52 6	2305	77 37 58	2294	79 24 6	2282	81 10.32	2271
	SATURN	W.	71 37 26	2320	73 22 57	2308	75 8 45	2297	76 54 49	2285
	α Aquilæ	W.	58 30 39	2901	60 2 57	2869	61 35 56	2839	63 9 33	2812
	SUN	E.	82 25 55	2638	80 47 52	2626	79 9 32	2614	77 30 56	2602
11	JUPITER	W.	90 6 40	2218	91 54 40	2208	93 42 55	2198	95 31 25	2189
	SATURN	W.	85 49 13	2232	87 36 53	2222	89 24 47	2212	91 12 56	2203
	α Aquilæ	W.	71 5 51	2698	72 42 34	2680	74 19 41	2662	75 57 12	2645
	SUN	E.	69 14 1	2547	67 33 53	2536	65 53 30	2526	64 12 53	2516
12	JUPITER	W.	104 37 20	2146	106 27 9	2139	108 17 10	2132	110 7 21	2124
	SATURN	W.	100 17 8	2159	102 6 37	2152	103 56 17	2145	105 46 8	2138
	α Aquilæ	W.	84 9 53	2580	85 49 15	2571	87 28 50	2562	89 8 37	2554
	Fomalhaut	W.	56 32 47	2873	58 5 40	2838	59 39 20	2805	61 13 42	2776
	α Pegasi	W.	36 24 14	2598	38 3 12	2558	39 43 6	2521	41 23 50	2488
	SUN	E.	55 46 23	2470	54 4 28	2463	52 22 22	2455	50 40 5	2448
13	Fomalhaut	W.	69 14 8	2663	70 51 37	2646	72 29 29	2632	74 7 41	2619
	α Pegasi	W.	49 57 32	2370	51 41 50	2353	53 26 33	2338	55 11 38	2325
	SUN	E.	42 6 25	2420	40 23 19	2417	38 40 8	2414	36 56 53	2412
14	Fomalhaut	W.	82 22 17	2580	84 1 40	2577	85 41 8	2575	87 20 39	2574
	α Pegasi	W.	64 1 5	2280	65 47 34	2275	67 34 10	2270	69 20 53	2267
	SUN	E.	28 20 6	2412	26 36 47	2415	24 53 33	2419	23 10 26	2425
18	SUN	W.	26 7 40	2710	27 44 6	2725	29 20 13	2740	30 56 0	2756
	MARS	E.	54 20 31	2567	52 40 51	2585	51 1 36	2604	49 22 46	2622
	Spica	E.	90 1 35	2375	88 17 25	2392	86 33 39	2408	84 50 16	2424
19	SUN	W.	38 49 32	2841	40 23 7	2858	41 56 20	2876	43 29 10	2894
	MARS	E.	41 15 6	2722	39 38 55	2743	38 3 12	2765	36 27 58	2786
	Spica	E.	76 19 13	2509	74 38 12	2525	72 57 34	2543	71 17 20	2560
20	SUN	W.	51 7 37	2984	52 38 10	3001	54 8 21	3018	55 38 11	3036
	Spica	E.	63 2 5	2646	61 24 12	2662	59 46 41	2678	58 9 32	2695
	Antares	E.	108 27 1	2672	106 49 43	2688	105 12 47	2704	103 36 12	2719
21	SUN	W.	63 1 59	3122	64 29 42	3138	65 57 6	3153	67 24 11	3169
	Spica	E.	50 9 12	2774	48 34 11	2789	46 59 29	2804	45 25 7	2819
	Antares	E.	95 38 33	2798	94 4 3	2814	92 29 53	2828	90 56 1	2842
22	SUN	W.	74 35 3	3242	76 0 22	3256	77 25 25	3269	78 50 13	3282
	Spica	E.	37 37 51	2887	36 5 15	2900	34 32 56	2912	33 0 52	2923
	Antares	E.	83 11 18	2911	81 39 13	2923	80 7 24	2935	78 35 50	2948
	JUPITER	E.	114 15 43	2853	112 42 24	2866	111 9 21	2878	109 36 34	2889
	SATURN	E.	119 7 40	2873	117 34 47	2885	116 2 9	2897	114 29 46	2908
23	SUN	W.	85 50 41	3338	87 14 8	3348	88 37 24	3358	90 0 29	3367
	Regulus	W.	29 1 35	3061	30 30 32	3063	31 59 27	3065	33 28 19	3068
	Antares	E.	71 1 40	3002	69 31 30	3011	68 1 31	3021	66 31 44	3030
	JUPITER	E.	101 56 3	2940	100 24 35	2949	98 53 18	2957	97 22 11	2965
	SATURN	E.	106 51 17	2958	105 20 12	2967	103 49 18	2975	102 18 34	2984

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
10	JUPITER W.	82 57 14	2260	84 44 12	2250	86 31 25	2239	88 18 55	2229
	SATURN W.	78 41 10	2274	80 27 47	2264	82 14 40	2253	84 1 49	2243
	<i>a</i> Aquilæ W.	64 43 45	2787	66 18 31	2763	67 53 48	2740	69 29 35	2718
	SUN E.	75 52 4	2591	74 12 56	2580	72 33 33	2569	70 53 54	2558
11	JUPITER W.	97 20 9	2180	99 9 7	2171	100 58 19	2163	102 47 43	2154
	SATURN W.	93 1 20	2194	94 49 57	2184	96 38 48	2176	98 27 52	2168
	<i>a</i> Aquilæ W.	77 35 6	2630	79 13 21	2616	80 51 54	2603	82 30 45	2591
	SUN E.	62 32 1	2506	60 50 56	2497	59 9 38	2487	57 28 7	2478
12	JUPITER W.	111 57 43	2118	113 48 14	2113	115 38 54	2107	117 29 43	2101
	SATURN W.	107 36 10	2132	109 26 21	2126	111 16 41	2120	113 7 10	2115
	<i>a</i> Aquilæ W.	90 48 35	2548	92 28 41	2544	94 8 53	2540	95 49 11	2536
	Fomalhaut W.	62 48 42	2749	64 24 17	2724	66 0 25	2701	67 37 3	2681
	<i>a</i> Pegasi W.	43 5 20	2459	44 47 31	2433	46 30 19	2409	48 13 41	2389
	SUN E.	48 57 38	2441	47 15 2	2435	45 32 17	2430	43 49 24	2425
13	Fomalhaut W.	75 46 10	2608	77 24 54	2598	79 3 51	2590	80 43 0	2584
	<i>a</i> Pegasi W.	56 57 1	2313	58 42 41	2303	60 28 36	2294	62 14 45	2286
	SUN E.	35 13 34	2410	33 30 13	2408	31 46 50	2408	30 3 27	2410
14	Fomalhaut W.	89 0 10	2575	90 39 39	2577	92 19 5	2582	93 58 25	2588
	<i>a</i> Pegasi W.	71 7 41	2266	72 54 31	2265	74 41 22	2265	76 28 13	2266
	SUN E.	21 27 27	2433	19 44 39	2443	18 2 5	2456	16 19 50	2475
18	SUN W.	32 31 26	2772	34 6 30	2788	35 41 13	2805	37 15 33	2822
	MARS E.	47 44 21	2641	46 6 22	2661	44 28 50	2681	42 51 44	2701
	Spica E.	83 7 16	2441	81 24 40	2458	79 42 27	2475	78 0 38	2492
19	SUN W.	45 1 37	2911	46 33 42	2929	48 5 24	2948	49 36 42	2966
	MARS E.	34 53 12	2809	33 18 56	2833	31 45 11	2857	30 11 57	2881
	Spica E.	69 37 30	2577	67 58 4	2594	66 19 1	2611	64 40 21	2629
20	SUN W.	57 7 39	3054	58 36 45	3071	60 5 30	3087	61 33 55	3105
	Spica E.	56 32 45	2711	54 56 20	2728	53 20 17	2743	51 44 34	2759
	Antares E.	101 59 58	2736	100 24 6	2752	98 48 35	2767	97 13 24	2782
21	SUN W.	68 50 57	3185	70 17 24	3199	71 43 34	3214	73 9 27	3228
	Spica E.	43 51 4	2834	42 17 20	2847	40 43 53	2860	39 10 43	2874
	Antares E.	89 22 29	2857	87 49 15	2870	86 16 18	2884	84 43 39	2898
22	SUN W.	80 14 46	3294	81 39 5	3306	83 3 10	3317	84 27 2	3328
	Spica E.	31 29 2	2935	29 57 27	2946	28 26 6	2956	26 54 58	2966
	Antares E.	77 4 32	2959	75 33 28	2970	74 2 39	2981	72 32 3	2992
	JUPITER E.	108 4 1	2900	106 31 42	2910	104 59 36	2920	103 27 43	2930
	SATURN E.	112 57 38	2919	111 25 43	2929	109 54 2	2939	108 22 33	2949
23	SUN W.	91 23 23	3375	92 46 8	3383	94 8 43	3391	95 31 10	3398
	Regulus W.	34 57 8	3071	36 25 53	3074	37 54 35	3077	39 23 13	3080
	Antares E.	65 2 8	3039	63 32 43	3047	62 3 28	3054	60 34 22	3061
	JUPITER E.	95 51 14	2973	94 20 27	2980	92 49 49	2986	91 19 19	2993
	SATURN E.	100 48 1	2992	99 17 39	2999	97 47 26	3006	96 17 21	3013

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
24	SUN	W.	96 53 29	3404	98 15 41	3410	99 37 45	3416	100 59 43	3421
	Regulus	W.	40 51 47	3083	42 20 17	3086	43 48 44	3088	45 17 9	3091
	MARS	W.	20 6 51	3383	21 29 27	3374	22 52 13	3365	24 15 10	3356
	Antares	E.	59 5 25	3068	57 36 37	3075	56 7 57	3081	54 39 24	3087
	JUPITER	E.	89 48 57	2998	88 18 42	3003	86 48 33	3009	85 18 32	3014
	SATURN	E.	94 47 24	3018	93 17 33	3023	91 47 50	3028	90 18 12	3033
	<i>α</i> Aquilæ	E.	110 12 45	3500	108 52 21	3498	107 31 55	3496	106 11 26	3493
25	SUN	W.	107 48 21	3439	109 9 53	3441	110 31 23	3443	111 52 51	3444
	Regulus	W.	52 38 32	3098	54 6 44	3099	55 34 55	3099	57 3 6	3099
	MARS	W.	31 11 52	3332	32 35 27	3328	33 59 6	3325	35 22 49	3322
	Antares	E.	47 18 18	3111	45 50 22	3115	44 22 32	3119	42 54 46	3123
	JUPITER	E.	77 49 36	3029	76 19 59	3031	74 50 25	3032	73 20 52	3033
	SATURN	E.	82 51 14	3048	81 22 1	3050	79 52 50	3051	78 23 41	3052
	<i>α</i> Aquilæ	E.	99 28 26	3485	98 7 45	3484	96 47 3	3482	95 26 19	3481
26	SUN	W.	118 40 3	3443	120 1 31	3442	121 23 0	3440	122 44 32	3438
	Regulus	W.	64 24 12	3093	65 52 30	3090	67 20 51	3087	68 49 16	3085
	MARS	W.	42 22 18	3305	43 46 23	3301	45 10 33	3297	46 34 48	3293
	Spica	W.	10 21 48	3071	11 50 33	3069	13 19 20	3066	14 48 11	3063
	Antares	E.	35 37 1	3141	34 9 41	3146	32 42 27	3150	31 15 18	3155
	JUPITER	E.	65 53 15	3032	64 23 42	3030	62 54 7	3028	61 24 30	3026
	SATURN	E.	70 58 1	3050	69 28 50	3049	67 59 39	3047	66 30 25	3044
	<i>α</i> Aquilæ	E.	88 42 21	3477	87 21 31	3476	86 0 40	3475	84 39 48	3474
27	Regulus	W.	76 12 22	3065	77 41 14	3060	79 10 13	3055	80 39 18	3049
	MARS	W.	53 37 22	3268	55 2 11	3263	56 27 6	3257	57 52 9	3251
	Spica	W.	22 13 26	3044	23 42 44	3039	25 12 9	3034	26 41 40	3029
	JUPITER	E.	53 55 35	3010	52 25 35	3006	50 55 31	3002	49 25 21	2997
	SATURN	E.	59 3 21	3028	57 33 43	3024	56 4 0	3019	54 34 11	3014
	<i>α</i> Aquilæ	E.	77 55 23	3475	76 34 31	3476	75 13 39	3477	73 52 49	3478
28	Regulus	W.	88 6 33	3018	89 36 24	3011	91 6 23	3003	92 36 32	2996
	MARS	W.	64 59 19	3214	66 25 11	3207	67 51 12	3199	69 17 23	3191
	Spica	W.	34 11 0	2997	35 41 16	2990	37 11 41	2983	38 42 15	2975
	JUPITER	E.	41 53 0	2972	40 22 12	2966	38 51 17	2960	37 20 15	2954
	SATURN	E.	47 3 32	2987	45 33 3	2981	44 2 26	2975	42 31 42	2968
	<i>α</i> Aquilæ	E.	67 9 13	3493	65 48 41	3498	64 28 14	3504	63 7 54	3511
29	Regulus	W.	100 9 40	2956	101 40 48	2948	103 12 6	2939	104 43 36	2930
	MARS	W.	76 30 47	3147	77 58 0	3138	79 25 23	3129	80 52 58	3119
	Spica	W.	46 17 33	2935	47 49 8	2926	49 20 53	2917	50 52 50	2909
	JUPITER	E.	29 43 17	2928	28 11 34	2924	26 39 45	2920	25 7 50	2918
	SATURN	E.	34 55 55	2935	33 24 21	2929	31 52 39	2923	30 20 49	2917
	<i>α</i> Aquilæ	E.	56 28 33	3563	55 9 18	3577	53 50 19	3594	52 31 39	3614
30	Regulus	W.	112 23 49	2886	113 56 26	2877	115 29 14	2868	117 2 14	2859
	MARS	W.	88 13 49	3070	89 42 35	3060	91 11 33	3050	92 40 44	3040
	Spica	W.	58 35 28	2862	60 8 35	2852	61 41 55	2842	63 15 28	2833
	<i>α</i> Aquilæ	E.	46 4 40	3761	44 48 57	3802	43 33 56	3848	42 19 43	3901
	<i>α</i> Pegasi	E.	90 18 52	3011	88 48 53	3002	87 18 43	2993	85 48 21	2984

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
24	SUN	W.	102 21 36	3426	103 43 23	3430	105 5 6	3433	106 26 45	3436
	Regulus	W.	46 45 30	3093	48 13 48	3095	49 42 4	3096	51 10 19	3097
	MARS	W.	25 38 17	3349	27 1 32	3344	28 24 54	3339	29 48 21	3335
	Antares	E.	53 10 58	3092	51 42 39	3097	50 14 26	3102	48 46 19	3107
	JUPITER	E.	83 48 36	3018	82 18 45	3021	80 48 58	3024	79 19 15	3027
	SATURN	E.	88 48 40	3037	87 19 13	3040	85 49 50	3043	84 20 30	3046
	α Aquilæ	E.	104 50 54	3491	103 30 20	3489	102 9 44	3488	100 49 6	3486
25	SUN	W.	113 14 18	3445	114 35 44	3445	115 57 10	3445	117 18 36	3444
	Regulus	W.	58 31 17	3099	59 59 28	3097	61 27 41	3096	62 55 56	3095
	MARS	W.	36 46 36	3319	38 10 26	3316	39 34 19	3312	40 58 16	3308
	Antares	E.	41 27 4	3127	39 59 27	3130	38 31 54	3133	37 4 25	3137
	JUPITER	E.	71 51 20	3034	70 21 49	3034	68 52 18	3034	67 22 47	3033
	SATURN	E.	76 54 33	3053	75 25 26	3052	73 56 18	3052	72 27 10	3052
	α Aquilæ	E.	94 5 33	3480	92 44 46	3479	91 23 59	3478	90 3 10	3478
26	SUN	W.	124 6 6	3435	125 27 43	3432	126 49 23	3428	128 11 7	3424
	Regulus	W.	70 17 44	3082	71 46 16	3078	73 14 53	3073	74 43 35	3069
	MARS	W.	47 59 7	3288	49 23 32	3283	50 48 3	3278	52 12 39	3273
	Spica	W.	16 17 5	3060	17 46 3	3056	19 15 6	3052	20 44 13	3048
	Antares	E.	29 48 15	3162	28 21 20	3169	26 54 34	3178	25 27 58	3186
	JUPITER	E.	59 54 50	3024	58 25 7	3021	56 55 21	3018	55 25 30	3014
	SATURN	E.	65 1 7	3042	63 31 46	3039	62 2 22	3036	60 32 54	3032
27	α Aquilæ	E.	83 18 55	3474	81 58 2	3474	80 37 9	3474	79 16 16	3474
	Regulus	W.	82 8 30	3043	83 37 49	3037	85 7 16	3031	86 36 50	3024
	MARS	W.	59 17 18	3244	60 42 35	3236	62 8 1	3229	63 33 36	3222
	Spica	W.	28 11 17	3023	29 41 1	3017	31 10 53	3011	32 40 52	3004
	JUPITER	E.	47 55 5	2993	46 24 44	2988	44 54 16	2982	43 23 41	2977
	SATURN	E.	53 4 17	3009	51 34 16	3004	50 4 8	2999	48 33 54	2993
	α Aquilæ	E.	72 32 0	3480	71 11 13	3483	69 50 30	3486	68 29 50	3489
28	Regulus	W.	94 6 50	2988	95 37 18	2981	97 7 55	2973	98 38 42	2964
	MARS	W.	70 43 43	3183	72 10 13	3174	73 36 54	3165	75 3 45	3156
	Spica	W.	40 12 59	2958	41 43 52	2960	43 14 55	2951	44 46 9	2943
	JUPITER	E.	35 49 5	2949	34 17 48	2944	32 46 25	2938	31 14 54	2933
	SATURN	E.	41 0 49	2962	39 29 48	2955	37 58 39	2948	36 27 21	2942
	α Aquilæ	E.	61 47 42	3519	60 27 39	3527	59 7 45	3538	57 48 2	3550
29	Regulus	W.	106 15 16	2921	107 47 7	2912	109 19 10	2904	110 51 24	2895
	MARS	W.	82 20 45	3110	83 48 43	3100	85 16 53	3090	86 45 15	3080
	Spica	W.	52 24 58	2899	53 57 18	2890	55 29 49	2881	57 2 32	2871
	JUPITER	E.	23 35 53	2917	22 3 55	2916	20 31 57	2915	18 59 58	2914
	SATURN	E.	28 48 52	2912	27 16 48	2907	25 44 37	2902	24 12 21	2899
	α Aquilæ	E.	51 13 20	3637	49 55 26	3663	48 37 59	3692	47 21 2	3724
30	Regulus	W.	118 35 25	2850	120 8 48	2842	121 42 22	2833	123 16 8	2824
	MARS	W.	94 10 7	3030	95 39 42	3020	97 9 30	3010	98 39 30	2999
	Spica	W.	64 49 13	2823	66 23 11	2814	67 57 21	2804	69 31 44	2794
	α Aquilæ	E.	41 6 24	3961	39 54 6	4029	38 42 55	4107	37 33 0	4197
	α Pegasi	E.	84 17 48	2975	82 47 3	2966	81 16 8	2958	79 45 2	2950

AT GREENWICH APPARENT NOON.

THE SUN'S													
Day of the Week.	Day of the Month.	Apparent Right Ascension.		Diff. for 1 Hour.	Apparent Declination.		Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.		
		h	m	s	s	°	'	"	"	s	m	s	
Mon.	1	6	38	50.52	10.342	N.23	9	0.4	-9.59	15 44.99	68.72	3 27.48	0.484
Tues.	2	6	42	58.60	10.331	23	4	58.2	10.60	15 44.98	68.68	3 38.98	0.474
Wed.	3	6	47	6.42	10.320	23	0	31.6	11.60	15 44.98	68.64	3 50.21	0.462
Thur.	4	6	51	13.96	10.308	22	55	41.0	-12.61	15 44.98	68.60	4 1.16	0.450
Frid.	5	6	55	21.20	10.295	22	50	26.2	13.61	15 44.98	68.56	4 11.82	0.438
Sat.	6	6	59	28.14	10.282	22	44	47.7	14.60	15 44.99	68.51	4 22.17	0.425
SUN.	7	7	3	34.75	10.268	22	38	45.4	-15.59	15 45.00	68.46	4 32.20	0.410
Mon.	8	7	7	41.00	10.253	22	32	19.5	16.57	15 45.01	68.41	4 41.86	0.395
Tues.	9	7	11	46.89	10.238	22	25	30.2	17.55	15 45.03	68.35	4 51.17	0.380
Wed.	10	7	15	52.41	10.222	22	18	17.4	-18.52	15 45.06	68.29	5 0.11	0.364
Thur.	11	7	19	57.53	10.205	22	10	41.7	19.47	15 45.10	68.23	5 8.65	0.347
Frid.	12	7	24	2.23	10.187	22	2	43.0	20.42	15 45.14	68.17	5 16.77	0.329
Sat.	13	7	28	6.49	10.168	21	54	21.6	-21.37	15 45.18	68.10	5 24.46	0.310
SUN.	14	7	32	10.30	10.149	21	45	37.5	22.30	15 45.22	68.04	5 31.69	0.291
Mon.	15	7	36	13.63	10.129	21	36	31.2	23.23	15 45.27	67.97	5 38.44	0.271
Tues.	16	7	40	16.48	10.108	21	27	2.8	-24.15	15 45.32	67.90	5 44.71	0.251
Wed.	17	7	44	18.81	10.086	21	17	12.5	25.05	15 45.38	67.83	5 50.48	0.229
Thur.	18	7	48	20.61	10.064	21	7	0.5	25.94	15 45.44	67.76	5 55.71	0.207
Frid.	19	7	52	21.87	10.041	20	56	27.1	-26.83	15 45.51	67.68	6 0.40	0.184
Sat.	20	7	56	22.58	10.018	20	45	32.6	27.71	15 45.58	67.61	6 4.54	0.161
SUN.	21	8	0	22.72	9.994	20	34	17.1	28.57	15 45.66	67.53	6 8.11	0.137
Mon.	22	8	4	22.28	9.970	20	22	41.0	-29.42	15 45.74	67.45	6 11.11	0.113
Tues.	23	8	8	21.25	9.945	20	10	44.4	30.27	15 45.82	67.37	6 13.53	0.088
Wed.	24	8	12	19.63	9.920	19	58	27.7	31.10	15 45.91	67.29	6 15.35	0.063
Thur.	25	8	16	17.41	9.895	19	45	51.0	-31.93	15 46.00	67.20	6 16.57	0.038
Frid.	26	8	20	14.58	9.870	19	32	54.6	32.75	15 46.10	67.12	6 17.19	0.013
Sat.	27	8	24	11.15	9.845	19	19	38.8	33.55	15 46.20	67.03	6 17.18	0.013
SUN.	28	8	28	7.11	9.819	19	6	3.8	-34.34	15 46.30	66.95	6 16.58	0.038
Mon.	29	8	32	2.45	9.794	18	52	10.0	35.13	15 46.41	66.86	6 15.38	0.064
Tues.	30	8	35	57.18	9.768	18	37	57.6	35.90	15 46.52	66.78	6 13.56	0.089
Wed.	31	8	39	51.31	9.743	18	23	26.8	36.66	15 46.63	66.69	6 11.13	0.114
Thur.	32	8	43	44.82	9.718	N.18	8	37.9	-37.41	15 46.75	66.61	6 8.09	0.138

NOTE.—The mean time of semidiameter passing may be found by subtracting 0^h.19 from the sidereal time.
 The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing.

AT GREENWICH MEAN NOON.

THE SUN'S

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ' "	"	m s	s	h m s
Mon.	1	6 38 49.92	+ 10.341	N.23 9 1.0	- 9.59	3 27.45	- 0.484	6 35 22.47
Tues.	2	6 42 57.97	10.330	23 4 58.8	10.60	3 38.95	0.474	6 39 19.02
Wed.	3	6 47 5.76	10.319	23 0 32.3	11.60	3 50.18	0.462	6 43 15.58
Thur.	4	6 51 13.27	+ 10.307	22 55 41.8	- 12.61	4 1.13	- 0.450	6 47 12.14
Frid.	5	6 55 20.48	10.294	22 50 27.2	13.61	4 11.79	0.438	6 51 8.69
Sat.	6	6 59 27.39	10.281	22 44 48.8	14.60	4 22.14	0.425	6 55 5.25
SUN.	7	7 3 33.97	+ 10.267	22 38 46.6	- 15.58	4 32.17	- 0.410	6 59 1.81
Mon.	8	7 7 40.19	10.252	22 32 20.8	16.56	4 41.83	0.395	7 2 58.36
Tues.	9	7 11 46.06	10.237	22 25 31.6	17.54	4 51.14	0.380	7 6 54.92
Wed.	10	7 15 51.55	+ 10.221	22 18 19.0	- 18.51	5 0.08	- 0.364	7 10 51.48
Thur.	11	7 19 56.65	10.204	22 10 43.4	19.46	5 8.62	0.347	7 14 48.03
Frid.	12	7 24 1.33	10.186	22 2 44.8	20.41	5 16.74	0.329	7 18 44.59
Sat.	13	7 28 5.57	+ 10.167	21 54 23.5	- 21.36	5 24.43	- 0.310	7 22 41.15
SUN.	14	7 32 9.36	10.148	21 45 39.6	22.29	5 31.66	0.291	7 26 37.70
Mon.	15	7 36 12.68	10.128	21 36 33.4	23.22	5 38.42	0.271	7 30 34.26
Tues.	16	7 40 15.51	+ 10.107	21 27 5.1	- 24.14	5 44.69	- 0.251	7 34 30.82
Wed.	17	7 44 17.83	10.085	21 17 14.9	25.04	5 50.46	0.229	7 38 27.37
Thur.	18	7 48 19.62	10.063	21 7 3.1	25.94	5 55.69	0.207	7 42 23.93
Frid.	19	7 52 20.87	+ 10.040	20 56 29.8	- 26.83	6 0.39	- 0.184	7 46 20.48
Sat.	20	7 56 21.57	10.017	20 45 35.4	27.71	6 4.53	0.161	7 50 17.04
SUN.	21	8 0 21.70	9.993	20 34 20.0	28.57	6 8.10	0.137	7 54 13.60
Mon.	22	8 4 21.25	+ 9.969	20 22 44.0	- 29.42	6 11.10	- 0.113	7 58 10.15
Tues.	23	8 8 20.22	9.945	20 10 47.5	30.27	6 13.52	0.088	8 2 6.71
Wed.	24	8 12 18.60	9.920	19 58 30.9	31.10	6 15.34	0.063	8 6 3.26
Thur.	25	8 16 16.38	+ 9.895	19 45 54.3	- 31.93	6 16.56	- 0.038	8 9 59.82
Frid.	26	8 20 13.55	9.870	19 32 58.0	32.75	6 17.18	- 0.013	8 13 56.38
Sat.	27	8 24 10.12	9.845	19 19 42.3	33.55	6 17.19	+ 0.013	8 17 52.93
SUN.	28	8 28 6.08	+ 9.819	19 6 7.4	- 34.34	6 16.59	+ 0.038	8 21 49.49
Mon.	29	8 32 1.43	9.794	18 52 13.7	35.13	6 15.39	0.064	8 25 46.04
Tues.	30	8 35 56.16	9.768	18 38 1.3	35.90	6 13.57	0.089	8 29 42.60
Wed.	31	8 39 50.30	9.743	18 23 30.6	36.66	6 11.14	0.114	8 33 39.15
Thur.	32	8 43 43.82	+ 9.718	N.18 8 41.7	- 37.41	6 8.11	+ 0.138	8 37 35.71

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing.

Diff. for 1 Hour,
+ 9°.8565.
(Table III.)

AT GREENWICH MEAN NOON.									
		THE SUN'S							
Day of the Month.	Day of the Year.	TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.	
		λ	λ'						
		$^{\circ}$ ' "	' "	"	"			h m s	
1	182	98 55 30.7	54 51.9	142.94	+ 0.67	0.0072029	+ 2.0	17 21 46.40	
2	183	99 52 41.3	52 2.3	142.94	0.77	0.0072068	1.4	17 17 50.49	
3	184	100 49 51.8	49 12.7	142.94	0.81	0.0072094	0.7	17 13 54.58	
4	185	101 47 2.4	46 23.2	142.95	+ 0.84	0.0072104	+ 0.1	17 9 58.66	
5	186	102 44 13.2	43 33.8	142.96	0.84	0.0072099	- 0.5	17 6 2.75	
6	187	103 41 24.3	40 44.7	142.97	0.81	0.0072078	1.2	17 2 6.84	
7	188	104 38 35.7	37 55.9	142.98	+ 0.73	0.0072040	- 2.0	16 58 10.93	
8	189	105 35 47.5	35 7.5	143.00	0.64	0.0071984	2.8	16 54 15.02	
9	190	106 32 59.7	32 19.6	143.02	0.52	0.0071909	3.6	16 50 19.11	
10	191	107 30 12.4	29 32.2	143.04	+ 0.40	0.0071813	- 4.5	16 46 23.20	
11	192	108 27 25.6	26 45.2	143.06	0.25	0.0071694	5.4	16 42 27.29	
12	193	109 24 39.4	23 58.8	143.08	+ 0.11	0.0071551	6.4	16 38 31.38	
13	194	110 21 53.6	21 12.9	143.10	- 0.02	0.0071384	- 7.5	16 34 35.47	
14	195	111 19 8.4	18 27.5	143.12	0.14	0.0071191	8.6	16 30 39.56	
15	196	112 16 23.6	15 42.5	143.14	0.24	0.0070972	9.7	16 26 43.65	
16	197	113 13 39.1	12 57.9	143.16	- 0.31	0.0070726	-10.8	16 22 47.74	
17	198	114 10 55.1	10 13.7	143.17	0.34	0.0070454	11.9	16 18 51.83	
18	199	115 8 11.4	7 29.8	143.19	0.36	0.0070157	12.9	16 14 55.92	
19	200	116 5 27.9	4 46.3	143.20	- 0.35	0.0069834	-13.9	16 11 0.01	
20	201	117 2 44.8	2 3.0	143.21	0.29	0.0069488	14.9	16 7 4.10	
21	202	117 60 2.0	59 20.0	143.22	0.23	0.0069118	15.8	16 3 8.19	
22	203	118 57 19.5	56 37.4	143.24	- 0.14	0.0068727	-16.7	15 59 12.28	
23	204	119 54 37.3	53 55.1	143.25	- 0.04	0.0068316	17.6	15 55 16.37	
24	205	120 51 55.5	51 13.1	143.26	+ 0.07	0.0067885	18.4	15 51 20.46	
25	206	121 49 14.1	48 31.6	143.28	+ 0.19	0.0067435	-19.1	15 47 24.55	
26	207	122 46 33.2	45 50.5	143.30	0.31	0.0066968	19.8	15 43 28.64	
27	208	123 43 52.7	43 9.9	143.33	0.40	0.0066485	20.5	15 39 32.73	
28	209	124 41 12.8	40 29.8	143.35	+ 0.51	0.0065986	-21.1	15 35 36.82	
29	210	125 38 33.5	37 50.4	143.38	0.59	0.0065473	21.7	15 31 40.91	
30	211	126 35 54.9	35 11.6	143.41	0.64	0.0064947	22.2	15 27 45.00	
31	212	127 33 17.1	32 33.7	143.44	0.67	0.0064408	22.7	15 23 49.09	
32	213	128 30 40.1	29 56.6	143.48	+ 0.66	0.0063856	-23.2	15 19 53.18	

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0^d.0 of the Bessellian fictitious year.

Diff. for 1 Hour,
—9^s.8296.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMI- DIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	
	"	"	"	"	"	"	h m	m	d
1	15 13.0	15 17.1	55 44.1	+ 1.23	55 59.1	+ 1.26	12 4.0	+ 2.14	14.9
2	15 21.3	15 25.5	56 14.4	1.28	56 29.8	1.28	12 55.2	2.12	15.9
3	15 29.6	15 33.7	56 45.1	1.27	57 0.3	1.25	13 45.8	2.09	16.9
4	15 37.8	15 41.7	57 15.1	+ 1.23	57 29.6	+ 1.19	14 35.5	+ 2.06	17.9
5	15 45.6	15 49.3	57 43.8	1.15	57 57.4	1.12	15 24.7	2.05	18.9
6	15 52.9	15 56.3	58 10.6	1.07	58 23.2	1.03	16 13.9	2.06	19.9
7	15 59.6	16 2.7	58 35.2	+ 0.98	58 46.6	+ 0.92	17 3.7	+ 2.10	20.9
8	16 5.6	16 8.3	58 57.3	0.85	59 7.0	0.77	17 55.1	2.18	21.9
9	16 10.7	16 12.7	59 15.8	0.68	59 23.4	0.58	18 48.5	2.28	22.9
10	16 14.4	16 15.7	59 29.7	+ 0.46	59 34.4	+ 0.32	19 44.5	+ 2.38	23.9
11	16 16.5	16 16.8	59 37.4	+ 0.17	59 38.4	- 0.01	20 42.8	2.46	24.9
12	16 16.5	16 15.6	59 37.3	- 0.19	59 33.8	0.39	21 42.3	2.48	25.9
13	16 13.9	16 11.7	59 27.9	- 0.59	59 19.5	- 0.80	22 41.6	+ 2.44	26.9
14	16 8.7	16 5.1	59 8.6	1.00	58 55.5	1.19	23 39.1	2.34	27.9
15	16 0.9	15 56.2	58 40.1	1.36	58 22.8	1.50	0		28.9
16	15 51.1	15 45.6	58 3.9	- 1.63	57 43.8	- 1.72	0 33.8	+ 2.21	0.6
17	15 39.9	15 34.0	57 22.7	1.77	57 1.2	1.79	1 25.1	2.07	1.6
18	15 28.2	15 22.4	56 39.7	1.78	56 18.5	1.73	2 13.4	1.96	2.6
19	15 16.8	15 11.6	55 58.1	- 1.65	55 38.9	- 1.54	2 59.2	+ 1.87	3.6
20	15 6.7	15 2.4	55 21.0	1.41	55 5.0	1.25	3 43.4	1.82	4.6
21	14 58.5	14 55.3	54 50.9	1.08	54 38.9	0.89	4 26.6	1.80	5.6
22	14 52.7	14 50.7	54 29.4	- 0.69	54 22.3	- 0.48	5 9.8	+ 1.81	6.6
23	14 49.5	14 48.9	54 17.7	- 0.27	54 15.7	- 0.06	5 53.6	1.85	7.6
24	14 49.1	14 50.0	54 16.3	+ 0.15	54 19.4	+ 0.36	6 38.7	1.91	8.6
25	14 51.5	14 53.6	54 25.0	+ 0.56	54 32.9	+ 0.75	7 25.5	+ 1.98	9.6
26	14 56.4	14 59.7	54 43.1	0.93	54 55.3	1.09	8 14.0	2.06	10.6
27	15 3.5	15 7.8	55 9.3	1.23	55 24.9	1.35	9 4.0	2.11	11.6
28	15 12.4	15 17.3	55 41.8	+ 1.45	55 59.7	+ 1.52	9 55.2	+ 2.14	12.6
29	15 22.3	15 27.5	56 18.3	1.56	56 37.3	1.58	10 46.9	2.15	13.6
30	15 32.7	15 37.7	56 56.3	1.57	57 14.9	1.53	11 38.5	2.14	14.6
31	15 42.7	15 47.3	57 33.1	1.47	57 50.2	1.38	12 29.6	2.12	15.6
32	15 51.7	15 55.7	58 6.3	+ 1.28	58 20.9	+ 1.15	13 20.2	+ 2.10	16.6

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 1.					WEDNESDAY 3.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	18 14 27.00	2.2302	S. 19 59 25.7	2.902	0	20 1 6.72	2.2018	S. 15 42 7.4	7.668
1	18 16 40.82	2.2304	19 56 28.4	3.008	1	20 3 18.79	2.2005	15 34 24.7	7.755
2	18 18 54.65	2.2306	19 53 24.7	3.115	2	20 5 30.78	2.1993	15 26 36.8	7.842
3	18 21 8.49	2.2308	19 50 14.6	3.221	3	20 7 42.70	2.1980	15 18 43.7	7.928
4	18 23 22.34	2.2309	19 46 58.2	3.327	4	20 9 54.54	2.1968	15 10 45.5	8.013
5	18 25 36.20	2.2311	19 43 35.4	3.433	5	20 12 6.31	2.1956	15 2 42.1	8.098
6	18 27 50.07	2.2312	19 40 6.2	3.539	6	20 14 18.01	2.1943	14 54 33.7	8.183
7	18 30 3.94	2.2312	19 36 30.7	3.644	7	20 16 29.63	2.1930	14 46 20.2	8.266
8	18 32 17.81	2.2312	19 32 48.9	3.750	8	20 18 41.17	2.1917	14 38 1.8	8.348
9	18 34 31.68	2.2311	19 29 0.7	3.855	9	20 20 52.63	2.1904	14 29 38.4	8.430
10	18 36 45.54	2.2309	19 25 6.3	3.959	10	20 23 4.02	2.1892	14 21 10.2	8.511
11	18 38 59.39	2.2308	19 21 5.6	4.064	11	20 25 15.33	2.1879	14 12 37.1	8.592
12	18 41 13.24	2.2307	19 16 58.6	4.168	12	20 27 26.57	2.1867	14 3 59.2	8.672
13	18 43 27.07	2.2304	19 12 45.4	4.273	13	20 29 37.73	2.1853	13 55 16.5	8.751
14	18 45 40.89	2.2302	19 8 25.9	4.378	14	20 31 48.81	2.1840	13 46 29.1	8.828
15	18 47 54.69	2.2298	19 4 0.1	4.481	15	20 33 59.81	2.1827	13 37 37.1	8.906
16	18 50 8.47	2.2294	18 59 28.2	4.583	16	20 36 10.73	2.1814	13 28 40.4	8.983
17	18 52 22.22	2.2290	18 54 50.1	4.687	17	20 38 21.58	2.1803	13 19 39.2	9.058
18	18 54 35.95	2.2286	18 50 5.8	4.789	18	20 40 32.36	2.1790	13 10 33.4	9.133
19	18 56 49.65	2.2282	18 45 15.4	4.892	19	20 42 43.06	2.1777	13 1 23.2	9.208
20	18 59 3.33	2.2277	18 40 18.8	4.994	20	20 44 53.68	2.1763	12 52 8.5	9.282
21	19 1 16.97	2.2271	18 35 16.1	5.096	21	20 47 4.22	2.1751	12 42 49.4	9.354
22	19 3 30.58	2.2265	18 30 7.3	5.197	22	20 49 14.69	2.1739	12 33 26.0	9.426
23	19 5 44.15	2.2259	S. 18 24 52.5	5.298	23	20 51 25.09	2.1728	S. 12 23 58.3	9.498
TUESDAY 2.					THURSDAY 4.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	19 7 57.69	2.2253	S. 18 19 31.6	5.398	0	20 53 35.42	2.1715	S. 12 14 26.3	9.568
1	19 10 11.19	2.2247	18 14 4.7	5.498	1	20 55 45.67	2.1703	12 4 50.2	9.637
2	19 12 24.65	2.2239	18 8 31.8	5.598	2	20 57 55.85	2.1691	11 55 9.9	9.705
3	19 14 38.06	2.2231	18 2 52.9	5.698	3	21 0 5.96	2.1680	11 45 25.6	9.773
4	19 16 51.42	2.2223	17 57 8.1	5.797	4	21 2 16.01	2.1668	11 35 37.2	9.840
5	19 19 4.74	2.2216	17 51 17.3	5.895	5	21 4 25.98	2.1656	11 25 44.8	9.907
6	19 21 18.01	2.2208	17 45 20.7	5.993	6	21 6 35.88	2.1645	11 15 48.4	9.972
7	19 23 31.23	2.2199	17 39 18.2	6.091	7	21 8 45.72	2.1634	11 5 48.2	10.036
8	19 25 44.40	2.2190	17 33 9.8	6.188	8	21 10 55.49	2.1623	10 55 44.1	10.099
9	19 27 57.51	2.2180	17 26 55.6	6.284	9	21 13 5.19	2.1612	10 45 36.3	10.162
10	19 30 10.56	2.2171	17 20 35.7	6.380	10	21 15 14.83	2.1602	10 35 24.7	10.223
11	19 32 23.56	2.2162	17 14 10.0	6.476	11	21 17 24.41	2.1591	10 25 9.5	10.284
12	19 34 36.50	2.2152	17 7 38.6	6.571	12	21 19 33.92	2.1580	10 14 50.6	10.344
13	19 36 49.38	2.2142	17 1 1.5	6.666	13	21 21 43.37	2.1571	10 4 28.2	10.403
14	19 39 2.20	2.2131	16 54 18.7	6.760	14	21 23 52.77	2.1562	9 54 2.2	10.462
15	19 41 14.95	2.2120	16 47 30.3	6.853	15	21 26 2.11	2.1552	9 43 32.8	10.518
16	19 43 27.64	2.2109	16 40 36.3	6.946	16	21 28 11.39	2.1543	9 33 0.0	10.575
17	19 45 40.26	2.2098	16 33 36.8	7.038	17	21 30 20.62	2.1534	9 22 23.8	10.631
18	19 47 52.82	2.2088	16 26 31.7	7.130	18	21 32 29.80	2.1525	9 11 44.3	10.685
19	19 50 5.31	2.2077	16 19 21.2	7.221	19	21 34 38.92	2.1516	9 1 1.6	10.738
20	19 52 17.74	2.2065	16 12 5.2	7.313	20	21 36 47.99	2.1508	8 50 15.7	10.792
21	19 54 30.09	2.2053	16 4 43.7	7.403	21	21 38 57.02	2.1501	8 39 26.6	10.843
22	19 56 42.37	2.2041	15 57 16.9	7.491	22	21 41 6.00	2.1493	8 28 34.5	10.893
23	19 58 54.58	2.2029	15 49 44.8	7.579	23	21 43 14.94	2.1486	8 17 39.4	10.943
24	20 1 6.72	2.2018	S. 15 42 7.4	7.668	24	21 45 23.83	2.1478	S. 8 6 41.3	10.993

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 5.					SUNDAY 7.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	21 45 23.83	2.1478	S. 8 6 41.3	10.993	0	23 28 26.32	2.1628	N. 1 18 35.0	12.164
1	21 47 32.68	2.1473	7 55 40.3	11.041	1	23 30 36.13	2.1642	1 30 44.8	12.163
2	21 49 41.50	2.1467	7 44 36.4	11.088	2	23 32 46.02	2.1657	1 42 54.5	12.160
3	21 51 50.28	2.1461	7 33 29.7	11.134	3	23 34 56.01	2.1673	1 55 4.0	12.156
4	21 53 59.03	2.1455	7 22 20.3	11.179	4	23 37 6.09	2.1688	2 7 13.2	12.151
5	21 56 7.74	2.1449	7 11 8.2	11.224	5	23 39 16.27	2.1705	2 19 22.1	12.145
6	21 58 16.42	2.1444	6 59 53.4	11.268	6	23 41 26.55	2.1723	2 31 30.6	12.138
7	22 0 25.07	2.1440	6 48 36.1	11.309	7	23 43 36.94	2.1741	2 43 38.7	12.131
8	22 2 33.70	2.1436	6 37 16.3	11.351	8	23 45 47.44	2.1759	2 55 46.3	12.121
9	22 4 42.30	2.1432	6 25 54.0	11.391	9	23 47 58.05	2.1778	3 7 53.2	12.110
10	22 6 50.88	2.1428	6 14 29.4	11.429	10	23 50 8.78	2.1798	3 19 59.5	12.098
11	22 8 59.44	2.1426	6 3 2.5	11.468	11	23 52 19.62	2.1817	3 32 5.0	12.086
12	22 11 7.99	2.1423	5 51 33.3	11.505	12	23 54 30.58	2.1838	3 44 9.8	12.073
13	22 13 16.52	2.1421	5 40 1.9	11.542	13	23 56 41.67	2.1858	3 56 13.7	12.057
14	22 15 25.04	2.1419	5 28 28.3	11.578	14	23 58 52.88	2.1879	4 8 16.6	12.040
15	22 17 33.55	2.1418	5 16 52.6	11.612	15	0 1 4.22	2.1902	4 20 18.5	12.023
16	22 19 42.05	2.1417	5 5 14.9	11.645	16	0 3 15.70	2.1924	4 32 19.3	12.004
17	22 21 50.55	2.1416	4 53 35.2	11.677	17	0 5 27.31	2.1948	4 44 19.0	11.985
18	22 23 59.04	2.1415	4 41 53.6	11.708	18	0 7 39.07	2.1971	4 56 17.5	11.964
19	22 26 7.53	2.1416	4 30 10.2	11.738	19	0 9 50.96	2.1994	5 8 14.7	11.942
20	22 28 16.03	2.1418	4 18 25.0	11.768	20	0 12 3.00	2.2018	5 20 10.5	11.918
21	22 30 24.54	2.1418	4 6 38.0	11.797	21	0 14 15.18	2.2043	5 32 4.8	11.893
22	22 32 33.05	2.1419	3 54 49.4	11.823	22	0 16 27.52	2.2069	5 43 57.7	11.868
23	22 34 41.57	2.1421	S. 3 42 59.2	11.849	23	0 18 40.01	2.2095	N. 5 55 49.0	11.842
SATURDAY 6.					MONDAY 8.				
0	22 36 50.10	2.1423	S. 3 31 7.5	11.874	0	0 20 52.66	2.2121	N. 6 7 38.7	11.813
1	22 38 58.65	2.1427	3 19 14.3	11.899	1	0 23 5.46	2.2148	6 19 26.6	11.784
2	22 41 7.22	2.1430	3 7 19.6	11.923	2	0 25 18.43	2.2175	6 31 12.8	11.754
3	22 43 15.81	2.1433	2 55 23.6	11.944	3	0 27 31.56	2.2203	6 42 57.1	11.723
4	22 45 24.42	2.1438	2 43 26.3	11.965	4	0 29 44.86	2.2231	6 54 39.5	11.690
5	22 47 33.06	2.1443	2 31 27.8	11.985	5	0 31 58.33	2.2259	7 6 19.9	11.656
6	22 49 41.73	2.1448	2 19 28.1	12.005	6	0 34 11.97	2.2288	7 17 58.2	11.621
7	22 51 50.44	2.1454	2 7 27.2	12.023	7	0 36 25.79	2.2318	7 29 34.4	11.584
8	22 53 59.18	2.1460	1 55 25.3	12.039	8	0 38 39.79	2.2348	7 41 8.3	11.546
9	22 56 7.96	2.1467	1 43 22.5	12.055	9	0 40 53.97	2.2378	7 52 39.9	11.508
10	22 58 16.78	2.1474	1 31 18.7	12.070	10	0 43 8.33	2.2409	8 4 9.2	11.468
11	23 0 25.65	2.1482	1 19 14.1	12.084	11	0 45 22.88	2.2440	8 15 36.0	11.426
12	23 2 34.56	2.1489	1 7 8.6	12.097	12	0 47 37.61	2.2472	8 27 0.3	11.383
13	23 4 43.52	2.1498	0 55 2.4	12.108	13	0 49 52.54	2.2504	8 38 22.0	11.340
14	23 6 52.54	2.1508	0 42 55.6	12.118	14	0 52 7.66	2.2537	8 49 41.1	11.295
15	23 9 1.62	2.1518	0 30 48.2	12.128	15	0 54 22.98	2.2569	9 0 57.4	11.248
16	23 11 10.75	2.1528	0 18 40.2	12.137	16	0 56 38.49	2.2602	9 12 10.9	11.201
17	23 13 19.95	2.1538	S. 0 6 31.8	12.144	17	0 58 54.20	2.2636	9 23 21.5	11.153
18	23 15 29.21	2.1549	N. 0 5 37.1	12.151	18	1 1 10.12	2.2670	9 34 29.2	11.103
19	23 17 38.54	2.1561	0 17 46.3	12.155	19	1 3 26.24	2.2704	9 45 33.8	11.051
20	23 19 47.94	2.1573	0 29 55.7	12.159	20	1 5 42.57	2.2739	9 56 35.3	10.998
21	23 21 57.42	2.1586	0 42 5.4	12.163	21	1 7 59.11	2.2774	10 7 33.6	10.945
22	23 24 6.97	2.1598	0 54 15.2	12.164	22	1 10 15.86	2.2809	10 18 28.7	10.891
23	23 26 16.60	2.1612	1 6 25.1	12.165	23	1 12 32.82	2.2845	10 29 20.5	10.834
24	23 28 26.32	2.1628	N. 1 18 35.0	12.164	24	1 14 50.00	2.2881	N. 10 40 8.8	10.777

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 9.					THURSDAY 11.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	1 14 50.00	2.2881	N. 10 40 8.8	10.777	0	3 9 5.78	2.4716	N. 17 47 42.2	6.576
1	1 17 7.39	2.2917	10 50 53.7	10.718	1	3 11 34.18	2.4750	17 54 13.3	6.460
2	1 19 25.00	2.2953	11 1 35.0	10.658	2	3 14 2.78	2.4783	18 0 37.4	6.343
3	1 21 42.83	2.2991	11 12 12.7	10.598	3	3 16 31.58	2.4817	18 6 54.5	6.226
4	1 24 0.89	2.3028	11 22 46.7	10.535	4	3 19 0.58	2.4849	18 13 4.5	6.108
5	1 26 19.17	2.3065	11 33 16.9	10.471	5	3 21 29.77	2.4881	18 19 7.4	5.988
6	1 28 37.67	2.3103	11 43 43.2	10.406	6	3 23 59.15	2.4913	18 25 3.1	5.868
7	1 30 56.40	2.3141	11 54 5.6	10.340	7	3 26 28.72	2.4943	18 30 51.6	5.747
8	1 33 15.36	2.3179	12 4 24.0	10.273	8	3 28 58.47	2.4973	18 36 32.7	5.624
9	1 35 34.55	2.3217	12 14 38.3	10.204	9	3 31 28.40	2.5002	18 42 6.5	5.501
10	1 37 53.96	2.3254	12 24 48.5	10.135	10	3 33 58.50	2.5032	18 47 32.8	5.377
11	1 40 13.60	2.3293	12 34 54.5	10.063	11	3 36 28.78	2.5061	18 52 51.7	5.252
12	1 42 33.48	2.3333	12 44 56.1	9.990	12	3 38 59.23	2.5088	18 58 3.0	5.126
13	1 44 53.60	2.3372	12 54 53.3	9.917	13	3 41 29.84	2.5115	19 3 6.8	5.000
14	1 47 13.95	2.3411	13 4 46.1	9.842	14	3 44 0.61	2.5142	19 8 3.0	4.873
15	1 49 34.53	2.3450	13 14 34.3	9.765	15	3 46 31.54	2.5168	19 12 51.5	4.745
16	1 51 55.35	2.3490	13 24 17.9	9.688	16	3 49 2.62	2.5192	19 17 32.4	4.617
17	1 54 16.41	2.3529	13 33 56.8	9.609	17	3 51 33.84	2.5216	19 22 5.5	4.487
18	1 56 37.70	2.3568	13 43 31.0	9.529	18	3 54 5.21	2.5239	19 26 30.8	4.356
19	1 58 59.23	2.3608	13 53 0.3	9.448	19	3 56 36.71	2.5262	19 30 48.2	4.225
20	2 1 21.00	2.3648	14 2 24.7	9.366	20	3 59 8.35	2.5283	19 34 57.8	4.094
21	2 3 43.01	2.3688	14 11 44.2	9.283	21	4 1 40.11	2.5304	19 38 59.5	3.962
22	2 6 5.26	2.3728	14 20 58.6	9.198	22	4 4 12.00	2.5324	19 42 53.2	3.828
23	2 8 27.74	2.3768	N. 14 30 7.9	9.111	23	4 6 44.00	2.5343	N. 19 46 38.9	3.696
WEDNESDAY 10.					FRIDAY 12.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	2 10 50.47	2.3808	N. 14 39 11.9	9.023	0	4 9 16.12	2.5363	N. 19 50 16.7	3.563
1	2 13 13.44	2.3848	14 48 10.7	8.935	1	4 11 48.35	2.5380	19 53 46.4	3.427
2	2 15 36.64	2.3887	14 57 4.1	8.845	2	4 14 20.68	2.5396	19 57 7.9	3.292
3	2 18 0.08	2.3927	15 5 52.1	8.754	3	4 16 53.10	2.5412	20 0 21.4	3.157
4	2 20 23.76	2.3966	15 14 34.6	8.662	4	4 19 25.62	2.5427	20 3 26.7	3.020
5	2 22 47.67	2.4005	15 23 11.5	8.568	5	4 21 58.22	2.5441	20 6 23.8	2.883
6	2 25 11.82	2.4045	15 31 42.8	8.473	6	4 24 30.91	2.5454	20 9 12.7	2.747
7	2 27 36.21	2.4085	15 40 8.3	8.378	7	4 27 3.67	2.5466	20 11 53.4	2.609
8	2 30 0.84	2.4124	15 48 28.1	8.281	8	4 29 36.50	2.5478	20 14 25.8	2.472
9	2 32 25.70	2.4163	15 56 42.0	8.183	9	4 32 9.40	2.5488	20 16 50.0	2.334
10	2 34 50.79	2.4202	16 4 50.0	8.083	10	4 34 42.35	2.5496	20 19 5.9	2.196
11	2 37 16.12	2.4240	16 12 52.0	7.983	11	4 37 15.35	2.5504	20 21 13.5	2.057
12	2 39 41.67	2.4278	16 20 48.0	7.883	12	4 39 48.40	2.5512	20 23 12.7	1.918
13	2 42 7.46	2.4317	16 28 37.9	7.779	13	4 42 21.49	2.5518	20 25 3.6	1.778
14	2 44 33.48	2.4355	16 36 21.5	7.675	14	4 44 54.62	2.5523	20 26 46.1	1.639
15	2 46 59.72	2.4394	16 43 58.9	7.570	15	4 47 27.77	2.5528	20 28 20.3	1.500
16	2 49 26.18	2.4429	16 51 29.9	7.463	16	4 50 0.95	2.5532	20 29 46.1	1.360
17	2 51 52.87	2.4467	16 58 54.5	7.357	17	4 52 34.15	2.5533	20 31 3.5	1.219
18	2 54 19.79	2.4504	17 6 12.7	7.248	18	4 55 7.35	2.5534	20 32 12.4	1.079
19	2 56 46.92	2.4540	17 13 24.3	7.138	19	4 57 40.56	2.5534	20 33 13.0	0.940
20	2 59 14.27	2.4576	17 20 29.3	7.028	20	5 0 13.76	2.5533	20 34 5.2	0.800
21	3 1 41.83	2.4612	17 27 27.7	6.917	21	5 2 46.96	2.5532	20 34 49.0	0.659
22	3 4 9.61	2.4647	17 34 19.3	6.804	22	5 5 20.14	2.5528	20 35 24.3	0.518
23	3 6 37.59	2.4681	17 41 4.2	6.691	23	5 7 53.30	2.5524	20 35 51.2	0.378
24	3 9 5.78	2.4716	N. 17 47 42.2	6.576	24	5 10 26.43	2.5519	N. 20 36 9.7	0.238

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.					
SATURDAY 13.							MONDAY 15.											
	h	m	s	s	°	'	"		h	m	s	s	°	'	"	"		
0	5	10	26.43	2.5519	N.20	36	9.7	0.238	0	7	10	29.30	2.4173	N.18	13	19.7	5.933	
1	5	12	59.53	2.5513		20	36	19.8	+0.098	1	7	12	54.20	2.4127	18	7	20.5	6.041
2	5	15	32.59	2.5507		20	36	21.5	-0.042	2	7	15	18.82	2.4080	18	1	14.8	6.148
3	5	18	5.61	2.5498		20	36	14.8	0.182	3	7	17	43.16	2.4033	17	55	2.7	6.254
4	5	20	38.57	2.5489		20	35	59.7	0.321	4	7	20	7.21	2.3986	17	48	44.3	6.358
5	5	23	11.48	2.5479		20	35	36.3	0.460	5	7	22	30.99	2.3938	17	42	19.7	6.462
6	5	25	44.32	2.5467		20	35	4.5	0.600	6	7	24	54.47	2.3889	17	35	48.9	6.564
7	5	28	17.08	2.5454		20	34	24.3	0.739	7	7	27	17.66	2.3841	17	29	12.0	6.666
8	5	30	49.77	2.5442		20	33	35.8	0.878	8	7	29	40.56	2.3793	17	22	29.0	6.767
9	5	33	22.38	2.5428		20	32	39.0	1.016	9	7	32	3.17	2.3743	17	15	40.0	6.861
10	5	35	54.90	2.5413		20	31	33.9	1.154	10	7	34	25.48	2.3693	17	8	45.1	6.963
11	5	38	27.33	2.5396		20	30	20.5	1.293	11	7	36	47.49	2.3643	17	1	44.4	7.060
12	5	40	59.65	2.5378		20	28	58.8	1.430	12	7	39	9.20	2.3593	16	54	37.9	7.155
13	5	43	31.86	2.5359		20	27	28.9	1.567	13	7	41	30.61	2.3543	16	47	25.8	7.249
14	5	46	3.96	2.5340		20	25	50.8	1.703	14	7	43	51.72	2.3493	16	40	8.0	7.343
15	5	48	35.94	2.5319		20	24	4.5	1.839	15	7	46	12.52	2.3442	16	32	44.7	7.434
16	5	51	7.79	2.5298		20	22	10.1	1.975	16	7	48	33.02	2.3391	16	25	15.9	7.525
17	5	53	39.52	2.5276		20	20	7.5	2.111	17	7	50	53.21	2.3339	16	17	41.7	7.614
18	5	56	11.10	2.5252		20	17	56.8	2.245	18	7	53	13.09	2.3288	16	10	2.2	7.703
19	5	58	42.54	2.5228		20	15	38.1	2.379	19	7	55	32.66	2.3237	16	2	17.4	7.789
20	6	1	13.83	2.5203		20	13	11.3	2.513	20	7	57	51.93	2.3185	15	54	27.5	7.874
21	6	3	44.97	2.5177		20	10	36.6	2.645	21	8	0	10.88	2.3133	15	46	32.5	7.959
22	6	6	15.95	2.5149		20	7	53.9	2.778	22	8	2	29.52	2.3081	15	38	32.4	8.043
23	6	8	46.76	2.5122	N.20	5	3.2	2.910		23	8	4	47.85	2.3029	N.15	30	27.4	8.125
SUNDAY 14.							TUESDAY 16.											
	h	m	s	s	°	'	"		h	m	s	s	°	'	"	"		
0	6	11	17.41	2.5093	N.20	2	4.7	3.041	0	8	7	5.87	2.2978	N.15	22	17.4	8.206	
1	6	13	47.88	2.5063		19	58	58.3	3.172	1	8	9	23.58	2.2925	15	14	2.7	8.284
2	6	16	18.17	2.5033		19	55	44.1	3.301	2	8	11	40.97	2.2873	15	5	43.3	8.363
3	6	18	48.27	2.5001		19	52	22.2	3.429	3	8	13	58.05	2.2821	14	57	19.2	8.440
4	6	21	18.18	2.4969		19	48	52.6	3.558	4	8	16	14.82	2.2769	14	48	50.5	8.516
5	6	23	47.90	2.4936		19	45	15.3	3.685	5	8	18	31.28	2.2717	14	40	17.3	8.590
6	6	26	17.41	2.4902		19	41	30.4	3.812	6	8	20	47.42	2.2664	14	31	39.7	8.663
7	6	28	46.72	2.4868		19	37	37.9	3.938	7	8	23	3.25	2.2613	14	22	57.7	8.735
8	6	31	15.82	2.4832		19	33	37.9	4.063	8	8	25	18.77	2.2561	14	14	11.5	8.806
9	6	33	44.70	2.4795		19	29	30.4	4.187	9	8	27	33.98	2.2508	14	5	21.0	8.876
10	6	36	13.36	2.4758		19	25	15.5	4.310	10	8	29	48.87	2.2456	13	56	26.4	8.944
11	6	38	41.80	2.4721		19	20	53.2	4.432	11	8	32	3.45	2.2404	13	47	27.7	9.011
12	6	41	10.01	2.4683		19	16	23.7	4.553	12	8	34	17.72	2.2353	13	38	25.1	9.076
13	6	43	37.99	2.4643		19	11	46.9	4.673	13	8	36	31.68	2.2302	13	29	18.6	9.141
14	6	46	5.73	2.4603		19	7	2.9	4.793	14	8	38	45.34	2.2251	13	20	8.2	9.205
15	6	48	33.23	2.4563		19	2	11.7	4.912	15	8	40	58.69	2.2199	13	10	54.0	9.268
16	6	51	0.49	2.4523		18	57	13.5	5.029	16	8	43	11.73	2.2148	13	1	36.1	9.328
17	6	53	27.50	2.4480		18	52	8.2	5.147	17	8	45	24.46	2.2097	12	52	14.6	9.387
18	6	55	54.25	2.4438		18	46	55.9	5.262	18	8	47	36.89	2.2047	12	42	49.6	9.446
19	6	58	20.75	2.4395		18	41	36.8	5.376	19	8	49	49.02	2.1997	12	33	21.1	9.503
20	7	0	46.99	2.4352		18	36	10.8	5.490	20	8	52	0.85	2.1947	12	23	49.2	9.560
21	7	3	12.97	2.4308		18	30	38.0	5.603	21	8	54	12.38	2.1896	12	14	13.9	9.615
22	7	5	38.68	2.4263		18	24	58.5	5.713	22	8	56	23.60	2.1845	12	4	35.4	9.668
23	7	8	4.13	2.4218		18	19	12.4	5.823	23	8	58	34.52	2.1796	11	54	53.7	9.721
24	7	10	29.30	2.4173	N.18	13	19.7	5.933		24	9	0	45.15	2.1748	N.11	45	8.9	9.773

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 17.					FRIDAY 19.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	9 0 45.15	2.1748	N. 11 45 8.9	9.773	0	10 40 8.99	1.9838	N. 3 17 39.5	10.958
1	9 2 55.49	2.1698	11 35 21.0	9.823	1	10 42 7.93	1.9809	3 6 40.1	10.991
2	9 5 5.53	2.1649	11 25 30.2	9.871	2	10 44 6.70	1.9782	2 55 40.6	10.992
3	9 7 15.28	2.1601	11 15 36.5	9.919	3	10 46 5.31	1.9755	2 44 41.1	10.993
4	9 9 24.74	2.1553	11 5 39.9	9.966	4	10 48 3.76	1.9728	2 33 41.5	10.993
5	9 11 33.91	2.1505	10 55 40.6	10.012	5	10 50 2.05	1.9703	2 22 42.0	10.992
6	9 13 42.80	2.1458	10 45 38.5	10.057	6	10 52 0.19	1.9677	2 11 42.5	10.991
7	9 15 51.40	2.1410	10 35 33.8	10.099	7	10 53 58.17	1.9652	2 0 43.1	10.988
8	9 17 59.72	2.1363	10 25 26.6	10.142	8	10 55 56.01	1.9628	1 49 43.9	10.985
9	9 20 7.76	2.1317	10 15 16.8	10.183	9	10 57 53.70	1.9603	1 38 44.9	10.981
10	9 22 15.52	2.1270	10 5 4.6	10.223	10	10 59 51.25	1.9580	1 27 46.2	10.976
11	9 24 23.00	2.1224	9 54 50.1	10.262	11	11 1 48.66	1.9557	1 16 47.8	10.971
12	9 26 30.21	2.1179	9 44 33.2	10.300	12	11 3 45.93	1.9535	1 5 49.7	10.965
13	9 28 37.15	2.1134	9 34 14.1	10.336	13	11 5 43.08	1.9513	0 54 52.0	10.958
14	9 30 43.82	2.1089	9 23 52.9	10.371	14	11 7 40.09	1.9492	0 43 54.8	10.950
15	9 32 50.22	2.1045	9 13 29.6	10.406	15	11 9 36.98	1.9472	0 32 58.0	10.942
16	9 34 56.36	2.1002	9 3 4.2	10.439	16	11 11 33.75	1.9452	0 22 1.7	10.933
17	9 37 2.24	2.0958	8 52 36.9	10.472	17	11 13 30.40	1.9432	0 11 6.0	10.923
18	9 39 7.85	2.0914	8 42 7.6	10.503	18	11 15 26.93	1.9412	N. 0 0 10.9	10.913
19	9 41 13.21	2.0873	8 31 36.5	10.533	19	11 17 23.35	1.9394	S. 0 10 43.5	10.902
20	9 43 18.32	2.0830	8 21 3.6	10.563	20	11 19 19.66	1.9376	0 21 37.3	10.890
21	9 45 23.17	2.0788	8 10 29.0	10.591	21	11 21 15.86	1.9358	0 32 30.3	10.878
22	9 47 27.77	2.0747	7 59 52.7	10.618	22	11 23 11.96	1.9342	0 43 22.6	10.864
23	9 49 32.13	2.0706	N. 7 49 14.8	10.643	23	11 25 7.96	1.9326	S. 0 54 14.0	10.850
THURSDAY 18.					SATURDAY 20.				
0	9 51 36.24	2.0665	N. 7 38 35.5	10.668	0	11 27 3.87	1.9310	S. 1 5 4.6	10.836
1	9 53 40.11	2.0625	7 27 54.6	10.693	1	11 28 59.68	1.9294	1 15 54.3	10.820
2	9 55 43.74	2.0586	7 17 12.3	10.716	2	11 30 55.40	1.9279	1 26 43.0	10.804
3	9 57 47.14	2.0547	7 6 28.7	10.738	3	11 32 51.03	1.9265	1 37 30.8	10.788
4	9 59 50.30	2.0508	6 55 43.8	10.759	4	11 34 46.58	1.9252	1 48 17.6	10.771
5	10 1 53.23	2.0469	6 44 57.6	10.779	5	11 36 42.05	1.9238	1 59 3.3	10.753
6	10 3 55.93	2.0432	6 34 10.3	10.798	6	11 38 37.44	1.9226	2 9 47.9	10.734
7	10 5 58.41	2.0394	6 23 21.8	10.817	7	11 40 32.76	1.9214	2 20 31.4	10.716
8	10 8 0.66	2.0358	6 12 32.3	10.833	8	11 42 28.01	1.9203	2 31 13.8	10.696
9	10 10 2.70	2.0322	6 1 41.8	10.850	9	11 44 23.19	1.9191	2 41 54.9	10.675
10	10 12 4.52	2.0286	5 50 50.3	10.866	10	11 46 18.30	1.9180	2 52 34.8	10.654
11	10 14 6.13	2.0250	5 39 57.9	10.880	11	11 48 13.35	1.9171	3 3 13.4	10.632
12	10 16 7.52	2.0215	5 29 4.7	10.893	12	11 50 8.35	1.9162	3 13 50.6	10.609
13	10 18 8.71	2.0182	5 18 10.7	10.907	13	11 52 3.29	1.9153	3 24 26.5	10.587
14	10 20 9.70	2.0148	5 7 15.9	10.918	14	11 53 58.18	1.9143	3 35 1.1	10.564
15	10 22 10.48	2.0114	4 56 20.5	10.929	15	11 55 53.01	1.9135	3 45 34.2	10.540
16	10 24 11.07	2.0082	4 45 24.4	10.939	16	11 57 47.80	1.9128	3 56 5.9	10.516
17	10 26 11.46	2.0049	4 34 27.8	10.948	17	11 59 42.55	1.9122	4 6 36.1	10.490
18	10 28 11.66	2.0018	4 23 30.6	10.958	18	12 1 37.26	1.9115	4 17 4.7	10.463
19	10 30 11.67	1.9987	4 12 32.9	10.965	19	12 3 31.93	1.9109	4 27 31.7	10.438
20	10 32 11.50	1.9956	4 1 34.8	10.971	20	12 5 26.57	1.9104	4 37 57.2	10.411
21	10 34 11.14	1.9925	3 50 36.4	10.976	21	12 7 21.18	1.9099	4 48 21.0	10.383
22	10 36 10.60	1.9895	3 39 37.7	10.981	22	12 9 15.76	1.9094	4 58 43.2	10.356
23	10 38 9.88	1.9866	3 28 38.7	10.985	23	12 11 10.31	1.9091	5 9 3.7	10.327
24	10 40 8.99	1.9838	N. 3 17 39.5	10.988	24	12 13 4.85	1.9086	S. 5 19 22.4	10.297

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 21.					TUESDAY 23.				
	h m s.	s	° ' "	"		h m s	s	° ' "	"
0	12 13 4.85	1.9088	S. 5 19 22.4	10.297	0	13 45 13.55	1.9475	S. 12 49 31.1	8.256
1	12 14 59.37	1.9085	5 29 39.3	10.267	1	13 47 10.45	1.9493	12 57 44.8	8.200
2	12 16 53.87	1.9083	5 39 54.5	10.237	2	13 49 7.47	1.9513	13 5 55.1	8.143
3	12 18 48.36	1.9081	5 50 7.8	10.206	3	13 51 4.60	1.9531	13 14 2.0	8.088
4	12 20 42.84	1.9079	6 0 19.2	10.174	4	13 53 1.84	1.9550	13 22 5.6	8.031
5	12 22 37.31	1.9078	6 10 28.7	10.143	5	13 54 59.20	1.9570	13 30 5.7	7.973
6	12 24 31.78	1.9078	6 20 36.3	10.110	6	13 56 56.68	1.9589	13 38 2.3	7.915
7	12 26 26.25	1.9078	6 30 41.9	10.077	7	13 58 54.27	1.9608	13 45 55.5	7.857
8	12 28 20.72	1.9079	6 40 45.5	10.043	8	14 0 51.98	1.9629	13 53 45.1	7.797
9	12 30 15.20	1.9080	6 50 47.1	10.009	9	14 2 49.82	1.9651	14 1 31.1	7.738
10	12 32 9.68	1.9082	7 0 46.6	9.973	10	14 4 47.79	1.9672	14 9 13.6	7.678
11	12 34 4.18	1.9085	7 10 43.9	9.938	11	14 6 45.88	1.9692	14 16 52.5	7.617
12	12 35 58.70	1.9088	7 20 39.1	9.902	12	14 8 44.09	1.9713	14 24 27.6	7.555
13	12 37 53.23	1.9090	7 30 32.1	9.866	13	14 10 42.44	1.9737	14 31 59.1	7.494
14	12 39 47.78	1.9093	7 40 23.0	9.829	14	14 12 40.93	1.9759	14 39 26.9	7.432
15	12 41 42.35	1.9098	7 50 11.6	9.791	15	14 14 39.55	1.9781	14 46 50.9	7.369
16	12 43 36.95	1.9102	7 59 57.9	9.753	16	14 16 38.30	1.9803	14 54 11.2	7.306
17	12 45 31.57	1.9107	8 9 41.9	9.714	17	14 18 37.19	1.9827	15 1 27.6	7.242
18	12 47 26.23	1.9113	8 19 23.6	9.675	18	14 20 36.23	1.9851	15 8 40.2	7.178
19	12 49 20.92	1.9118	8 29 2.9	9.635	19	14 22 35.40	1.9873	15 15 48.9	7.113
20	12 51 15.65	1.9125	8 38 39.8	9.595	20	14 24 34.71	1.9897	15 22 53.7	7.048
21	12 53 10.42	1.9132	8 48 14.3	9.554	21	14 26 34.17	1.9922	15 29 54.6	6.982
22	12 55 5.23	1.9138	8 57 46.3	9.513	22	14 28 33.77	1.9946	15 36 51.5	6.915
23	12 57 0.08	1.9146	S. 9 7 15.8	9.471	23	14 30 33.52	1.9971	S. 15 43 44.4	6.848
MONDAY 22.					WEDNESDAY 24.				
	h m s.	s	° ' "	"		h m s	s	° ' "	"
0	12 58 54.98	1.9154	S. 9 16 42.8	9.428	0	14 32 33.42	1.9996	S. 15 50 33.2	6.780
1	13 0 49.93	1.9163	9 26 7.2	9.386	1	14 34 33.47	2.0021	15 57 18.0	6.712
2	13 2 44.94	1.9173	9 35 29.1	9.343	2	14 36 33.67	2.0046	16 3 58.7	6.643
3	13 4 40.00	1.9181	9 44 48.3	9.298	3	14 38 34.02	2.0071	16 10 35.2	6.574
4	13 6 35.11	1.9191	9 54 4.8	9.253	4	14 40 34.52	2.0097	16 17 7.6	6.505
5	13 8 30.29	1.9202	10 3 18.7	9.209	5	14 42 35.18	2.0123	16 23 35.8	6.435
6	13 10 25.53	1.9213	10 12 29.9	9.163	6	14 44 35.99	2.0148	16 29 59.8	6.364
7	13 12 20.84	1.9224	10 21 38.3	9.117	7	14 46 36.96	2.0175	16 36 19.5	6.293
8	13 14 16.22	1.9236	10 30 43.9	9.070	8	14 48 38.09	2.0201	16 42 34.9	6.221
9	13 16 11.67	1.9248	10 39 46.7	9.023	9	14 50 39.37	2.0228	16 48 46.0	6.148
10	13 18 7.19	1.9260	10 48 46.7	8.976	10	14 52 40.82	2.0254	16 54 52.7	6.075
11	13 20 2.79	1.9273	10 57 43.8	8.928	11	14 54 42.42	2.0280	17 0 55.0	6.002
12	13 21 58.46	1.9286	11 6 38.0	8.879	12	14 56 44.18	2.0308	17 6 52.9	5.928
13	13 23 54.22	1.9300	11 15 29.3	8.830	13	14 58 46.11	2.0335	17 12 46.4	5.854
14	13 25 50.06	1.9314	11 24 17.6	8.781	14	15 0 48.20	2.0362	17 18 35.4	5.778
15	13 27 45.99	1.9328	11 33 3.0	8.731	15	15 2 50.45	2.0389	17 24 19.8	5.703
16	13 29 42.00	1.9343	11 41 45.3	8.680	16	15 4 52.87	2.0417	17 29 59.7	5.627
17	13 31 38.10	1.9358	11 50 24.6	8.629	17	15 6 55.45	2.0443	17 35 35.0	5.550
18	13 33 34.30	1.9374	11 59 0.8	8.577	18	15 8 58.19	2.0472	17 41 5.7	5.473
19	13 35 30.59	1.9390	12 7 33.8	8.524	19	15 11 1.11	2.0500	17 46 31.8	5.396
20	13 37 26.98	1.9407	12 16 3.7	8.472	20	15 13 4.19	2.0527	17 51 53.2	5.318
21	13 39 23.47	1.9423	12 24 30.4	8.418	21	15 15 7.43	2.0554	17 57 9.9	5.238
22	13 41 20.06	1.9440	12 32 53.9	8.364	22	15 17 10.84	2.0583	18 2 21.8	5.159
23	13 43 16.75	1.9458	12 41 14.1	8.310	23	15 19 14.42	2.0610	18 7 29.0	5.080
24	13 45 13.55	1.9475	S. 12 49 31.1	8.256	24	15 21 18.16	2.0638	S. 18 12 31.4	4.999

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 25.					SATURDAY 27.				
	h m s	s	"	"		h m s	s	"	"
0	15 21 18.16	2.0638	S. 18 12 31.4	4.999	0	17 3 29.86	2.1885	S. 20 30 29.5	0.574
1	15 23 22.08	2.0667	18 17 28.9	4.918	1	17 5 41.23	2.1906	20 31 0.9	0.473
2	15 25 26.17	2.0695	18 22 21.6	4.837	2	17 7 52.73	2.1926	20 31 26.2	0.370
3	15 27 30.42	2.0723	18 27 9.4	4.755	3	17 10 4.34	2.1946	20 31 45.3	0.268
4	15 29 34.84	2.0752	18 31 52.2	4.673	4	17 12 16.08	2.1966	20 31 58.3	0.164
5	15 31 39.44	2.0780	18 36 30.1	4.590	5	17 14 27.93	2.1985	20 32 5.0	-0.061
6	15 33 44.20	2.0808	18 41 3.0	4.506	6	17 16 39.90	2.2004	20 32 5.6	+0.043
7	15 35 49.13	2.0836	18 45 30.8	4.422	7	17 18 51.98	2.2023	20 31 59.9	0.147
8	15 37 54.23	2.0863	18 49 53.6	4.338	8	17 21 4.18	2.2042	20 31 48.0	0.251
9	15 39 59.49	2.0892	18 54 11.4	4.253	9	17 23 16.48	2.2058	20 31 29.8	0.356
10	15 42 4.93	2.0920	18 58 24.0	4.168	10	17 25 28.88	2.2076	20 31 5.3	0.460
11	15 44 10.53	2.0947	19 2 31.5	4.082	11	17 27 41.39	2.2093	20 30 34.6	0.565
12	15 46 16.29	2.0975	19 6 33.8	3.995	12	17 29 54.00	2.2110	20 29 57.5	0.671
13	15 48 22.23	2.1004	19 10 30.9	3.907	13	17 32 6.71	2.2127	20 29 14.1	0.776
14	15 50 28.34	2.1032	19 14 22.7	3.820	14	17 34 19.52	2.2143	20 28 24.4	0.882
15	15 52 34.61	2.1059	19 18 9.3	3.733	15	17 36 32.42	2.2158	20 27 28.3	0.988
16	15 54 41.05	2.1088	19 21 50.6	3.644	16	17 38 45.42	2.2174	20 26 25.9	1.093
17	15 56 47.66	2.1115	19 25 26.6	3.555	17	17 40 58.51	2.2189	20 25 17.1	1.199
18	15 58 54.43	2.1142	19 28 57.2	3.465	18	17 43 11.69	2.2203	20 24 2.0	1.305
19	16 1 1.36	2.1169	19 32 22.4	3.375	19	17 45 24.95	2.2218	20 22 40.5	1.412
20	16 3 8.46	2.1197	19 35 42.2	3.285	20	17 47 38.30	2.2231	20 21 12.6	1.518
21	16 5 15.72	2.1224	19 38 56.6	3.194	21	17 49 51.72	2.2243	20 19 38.3	1.625
22	16 7 23.15	2.1252	19 42 5.5	3.103	22	17 52 5.22	2.2257	20 17 57.6	1.731
23	16 9 30.74	2.1278	S. 19 45 8.9	3.011	23	17 54 18.80	2.2269	S. 20 16 10.6	1.837
FRIDAY 26.					SUNDAY 28.				
	h m s	s	"	"		h m s	s	"	"
0	16 11 38.49	2.1305	S. 19 48 6.8	2.918	0	17 56 32.45	2.2282	S. 20 14 17.2	1.944
1	16 13 46.40	2.1332	19 50 59.1	2.826	1	17 58 46.18	2.2293	20 12 17.3	2.052
2	16 15 54.47	2.1358	19 53 45.9	2.733	2	18 0 59.97	2.2303	20 10 11.0	2.158
3	16 18 2.70	2.1385	19 56 27.0	2.638	3	18 3 13.82	2.2314	20 7 58.3	2.266
4	16 20 11.09	2.1411	19 59 2.5	2.544	4	18 5 27.74	2.2325	20 5 39.1	2.373
5	16 22 19.63	2.1437	20 1 32.3	2.450	5	18 7 41.72	2.2335	20 3 13.5	2.480
6	16 24 28.33	2.1463	20 3 56.5	2.355	6	18 9 55.76	2.2345	20 0 41.5	2.587
7	16 26 37.18	2.1488	20 6 14.9	2.259	7	18 12 9.86	2.2354	19 58 3.0	2.695
8	16 28 46.19	2.1514	20 8 27.6	2.163	8	18 14 24.01	2.2362	19 55 18.1	2.802
9	16 30 55.35	2.1538	20 10 34.5	2.067	9	18 16 38.20	2.2370	19 52 26.8	2.909
10	16 33 4.65	2.1563	20 12 35.6	1.970	10	18 18 52.45	2.2378	19 49 29.0	3.017
11	16 35 14.11	2.1588	20 14 30.9	1.873	11	18 21 6.74	2.2386	19 46 24.8	3.123
12	16 37 23.71	2.1613	20 16 20.3	1.775	12	18 23 21.08	2.2393	19 43 14.2	3.230
13	16 39 33.46	2.1637	20 18 3.9	1.678	13	18 25 35.46	2.2399	19 39 57.2	3.338
14	16 41 43.35	2.1661	20 19 41.6	1.579	14	18 27 49.87	2.2405	19 36 33.7	3.445
15	16 43 53.39	2.1684	20 21 13.4	1.480	15	18 30 4.32	2.2411	19 33 3.8	3.551
16	16 46 3.56	2.1708	20 22 39.2	1.381	16	18 32 18.80	2.2417	19 29 27.6	3.658
17	16 48 13.88	2.1731	20 23 59.1	1.282	17	18 34 33.32	2.2423	19 25 44.9	3.765
18	16 50 24.33	2.1753	20 25 13.0	1.182	18	18 36 47.87	2.2427	19 21 55.8	3.871
19	16 52 34.92	2.1776	20 26 20.9	1.082	19	18 39 2.44	2.2430	19 18 0.4	3.977
20	16 54 45.64	2.1798	20 27 22.8	0.981	20	18 41 17.03	2.2434	19 13 58.6	4.083
21	16 56 56.50	2.1821	20 28 18.6	0.879	21	18 43 31.65	2.2438	19 9 50.4	4.190
22	16 59 7.49	2.1843	20 29 8.3	0.778	22	18 45 46.28	2.2440	19 5 35.8	4.296
23	17 1 18.61	2.1864	20 29 52.0	0.677	23	18 48 0.93	2.2443	19 1 14.9	4.401
24	17 3 29.86	2.1885	S. 20 30 29.5	0.574	24	18 50 15.59	2.2445	S. 18 56 47.7	4.506

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 29.					WEDNESDAY 31.				
	<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>		<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>
0	18 50 15.59	2.2445	S. 18 56 47.7	4.506	0	20 37 38.48	2.2208	S. 13 26 4.7	9.072
1	18 52 30.27	2.2447	18 52 14.2	4.612	1	20 39 51.70	2.2198	13 16 58.0	9.152
2	18 54 44.96	2.2448	18 47 34.3	4.717	2	20 42 4.86	2.2189	13 7 46.5	9.231
3	18 56 59.65	2.2449	18 42 48.2	4.821	3	20 44 17.97	2.2181	12 58 30.3	9.309
4	18 59 14.35	2.2450	18 37 55.8	4.926	4	20 46 31.03	2.2172	12 49 9.4	9.387
5	19 1 29.05	2.2450	18 32 57.1	5.030	5	20 48 44.03	2.2163	12 39 43.9	9.463
6	19 3 43.75	2.2450	18 27 52.2	5.133	6	20 50 56.98	2.2153	12 30 13.9	9.538
7	19 5 58.45	2.2450	18 22 41.1	5.238	7	20 53 9.87	2.2144	12 20 39.3	9.614
8	19 8 13.15	2.2449	18 17 23.7	5.341	8	20 55 22.71	2.2135	12 11 0.2	9.688
9	19 10 27.84	2.2448	18 12 0.2	5.443	9	20 57 35.49	2.2126	12 1 16.8	9.760
10	19 12 42.52	2.2446	18 6 30.5	5.546	10	20 59 48.22	2.2118	11 51 29.0	9.833
11	19 14 57.19	2.2444	18 0 54.7	5.648	11	21 2 0.90	2.2108	11 41 36.9	9.904
12	19 17 11.85	2.2443	17 55 12.7	5.751	12	21 4 13.52	2.2099	11 31 40.5	9.975
13	19 19 26.50	2.2440	17 49 24.6	5.853	13	21 6 26.09	2.2091	11 21 39.9	10.044
14	19 21 41.13	2.2438	17 43 30.4	5.953	14	21 8 38.61	2.2083	11 11 35.2	10.113
15	19 23 55.75	2.2434	17 37 30.2	6.053	15	21 10 51.08	2.2073	11 1 26.4	10.180
16	19 26 10.34	2.2431	17 31 24.0	6.154	16	21 13 3.49	2.2064	10 51 13.6	10.247
17	19 28 24.92	2.2428	17 25 11.7	6.255	17	21 15 15.85	2.2057	10 40 56.8	10.313
18	19 30 39.47	2.2423	17 18 53.4	6.354	18	21 17 28.17	2.2048	10 30 36.1	10.378
19	19 32 54.00	2.2419	17 12 29.2	6.453	19	21 19 40.43	2.2040	10 20 11.5	10.442
20	19 35 8.50	2.2414	17 5 59.1	6.551	20	21 21 52.65	2.2033	10 9 43.1	10.504
21	19 37 22.97	2.2409	16 59 23.1	6.649	21	21 24 4.82	2.2024	9 59 11.0	10.566
22	19 39 37.41	2.2405	16 52 41.2	6.748	22	21 26 16.94	2.2017	9 48 35.2	10.628
23	19 41 51.83	2.2400	S. 16 45 53.4	6.844	23	21 28 29.02	2.2009	S. 9 37 55.7	10.688
TUESDAY 30.					THURSDAY, AUGUST 1.				
0	19 44 6.21	2.2394	S. 16 38 59.9	6.940	0	21 30 41.05	2.2002	S. 9 27 12.7	10.747
1	19 46 20.56	2.2388	16 32 0.6	7.037	PHASES OF THE MOON.				
2	19 48 34.87	2.2382	16 24 55.5	7.133					
3	19 50 49.14	2.2375	16 17 44.7	7.227					
4	19 53 3.37	2.2369	16 10 28.3	7.321					
5	19 55 17.57	2.2363	16 3 6.2	7.415					
6	19 57 31.72	2.2355	15 55 38.5	7.508	<div><div>○ Full Moon July</div><div>d h m</div><div>1 11 17.6</div></div> <div><div>☾ Last Quarter</div><div>8 15 19.9</div></div> <div><div>● New Moon</div><div>15 10 10.5</div></div> <div><div>☾ First Quarter</div><div>23 1 58.2</div></div> <div><div>○ Full Moon</div><div>30 22 33.7</div></div>				
7	19 59 45.83	2.2348	15 48 5.2	7.601					
8	20 1 59.90	2.2342	15 40 26.4	7.693					
9	20 4 13.93	2.2334	15 32 42.1	7.784					
10	20 6 27.91	2.2326	15 24 52.3	7.875	<div><div>☾ Perigee July</div><div>d h</div><div>11 11.8</div></div> <div><div>☾ Apogee</div><div>23 15.3</div></div>				
11	20 8 41.84	2.2318	15 16 57.1	7.965					
12	20 10 55.73	2.2311	15 8 56.5	8.054					
13	20 13 9.57	2.2303	15 0 50.6	8.143					
14	20 15 23.37	2.2295	14 52 39.4	8.231					
15	20 17 37.11	2.2287	14 44 22.9	8.318					
16	20 19 50.81	2.2278	14 36 1.2	8.405					
17	20 22 4.45	2.2269	14 27 34.3	8.492					
18	20 24 18.04	2.2261	14 19 2.2	8.577					
19	20 26 31.58	2.2253	14 10 25.1	8.661					
20	20 28 45.07	2.2243	14 1 42.9	8.744					
21	20 30 58.50	2.2234	13 52 55.8	8.827					
22	20 33 11.88	2.2226	13 44 3.7	8.910					
23	20 35 25.21	2.2217	13 35 6.6	8.992					
24	20 37 38.48	2.2208	S. 13 26 4.7	9.072					

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	MARS W.	100 9 44	2989	101 40 10	2979	103 10 48	2969	104 41 39	2960
	Spica W.	71 6 20	2784	72 41 9	2774	74 16 10	2764	75 51 25	2755
	Antares W.	26 13 31	2902	27 45 47	2881	29 18 30	2862	30 51 38	2843
	α Pegasi E.	78 13 46	2941	76 42 19	2934	75 10 43	2926	73 38 57	2919
2	Spica W.	83 50 51	2706	85 27 23	2696	87 4 8	2687	88 41 6	2678
	Antares W.	38 42 50	2766	40 18 3	2753	41 53 33	2739	43 29 21	2726
	α Pegasi E.	65 58 3	2889	64 25 30	2885	62 52 52	2881	61 20 9	2878
	α Arietis E.	109 0 5	2760	107 24 45	2750	105 49 11	2739	104 13 23	2729
3	Spica W.	96 49 3	2631	98 27 16	2622	100 5 41	2613	101 44 18	2604
	Antares W.	51 32 20	2669	53 9 41	2659	54 47 16	2649	56 25 5	2638
	JUPITER W.	21 49 15	2649	23 27 4	2633	25 5 14	2618	26 43 44	2604
	α Pegasi E.	53 35 46	2873	52 2 52	2875	50 30 0	2878	48 57 13	2883
	α Arietis E.	96 11 3	2680	94 33 57	2671	92 56 38	2662	91 19 7	2653
4	Antares W.	64 37 35	2591	66 16 43	2581	67 56 4	2572	69 35 37	2563
	JUPITER W.	35 0 38	2546	36 40 47	2535	38 21 11	2525	40 1 49	2516
	SATURN W.	29 30 10	2571	31 9 45	2559	32 49 37	2548	34 29 44	2537
	α Arietis E.	83 8 35	2611	81 29 55	2603	79 51 4	2595	78 12 2	2588
	Aldebaran E.	116 19 52	2574	114 40 21	2565	113 0 38	2556	111 20 43	2548
5	Antares W.	77 56 21	2522	79 37 4	2514	81 17 57	2506	82 59 2	2498
	JUPITER W.	48 28 12	2471	50 10 6	2463	51 52 11	2455	53 34 28	2447
	SATURN W.	42 53 45	2491	44 35 11	2482	46 16 50	2473	47 58 41	2465
	α Arietis E.	69 54 25	2553	68 14 25	2547	66 34 17	2541	64 54 0	2535
	Aldebaran E.	102 58 15	2507	101 17 12	2499	99 35 58	2492	97 54 33	2485
	SUN E.	136 39 34	2835	135 5 51	2826	133 31 58	2817	131 57 52	2808
6	Antares W.	91 27 5	2462	93 9 12	2455	94 51 29	2448	96 33 56	2441
	JUPITER W.	62 8 38	2409	63 52 0	2401	65 35 33	2394	67 19 16	2387
	SATURN W.	56 30 46	2426	58 13 44	2419	59 56 52	2411	61 40 11	2404
	α Arietis E.	56 30 44	2510	54 49 45	2506	53 8 40	2502	51 27 3	2499
	Aldebaran E.	89 24 52	2448	87 42 25	2441	85 59 48	2434	84 17 1	2427
	SUN E.	124 4 33	2766	122 29 21	2758	120 53 58	2750	119 18 24	2742
7	JUPITER W.	76 0 24	2353	77 45 7	2346	79 29 59	2339	81 15 1	2333
	SATURN W.	70 19 18	2369	72 3 37	2362	73 48 6	2356	75 32 44	2349
	α Arietis E.	43 0 55	2494	41 19 34	2495	39 38 14	2498	37 56 57	2492
	Aldebaran E.	75 40 44	2394	73 57 0	2388	72 13 8	2381	70 29 6	2375
	SUN E.	111 18 3	2704	109 41 29	2697	108 4 47	2690	106 27 54	2684
8	JUPITER W.	90 2 26	2303	91 48 21	2297	93 34 25	2291	95 20 38	2285
	SATURN W.	84 18 14	2318	86 3 47	2313	87 49 28	2307	89 35 18	2301
	Fomalhaut W.	42 2 1	3524	43 21 59	3441	44 43 29	3368	46 6 22	3302
	Aldebaran E.	61 46 47	2346	60 1 54	2341	58 16 54	2335	56 31 45	2330
	SUN E.	98 21 13	2651	96 43 27	2644	95 5 33	2637	93 27 28	2631
9	SATURN W.	98 26 31	2274	100 13 9	2270	101 59 53	2265	103 46 45	2260
	Fomalhaut W.	53 17 58	3052	54 47 7	3013	56 17 4	2978	57 47 44	2946
	Aldebaran E.	47 44 17	2307	45 58 28	2303	44 12 33	2300	42 26 33	2297
	SUN E.	85 15 7	2603	83 36 16	2598	81 57 18	2593	80 18 12	2588

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	MARS W.	106 12 42	2950	107 43 58	2940	109 15 26	2930	110 47 7	2920
	Spica W.	77 26 52	2745	79 2 32	2735	80 38 25	2725	82 14 32	2716
	Antares W.	32 25 10	2826	33 59 5	2810	35 33 20	2795	37 7 55	2780
	α Pegasi E.	72 7 3	2912	70 35 0	2906	69 2 48	2900	67 30 29	2894
2	Spica W.	90 18 16	2668	91 55 39	2659	93 33 14	2649	95 11 2	2640
	Antares W.	45 5 26	2714	46 41 47	2703	48 18 22	2692	49 55 13	2680
	α Pegasi E.	59 47 21	2875	58 14 30	2873	56 41 36	2872	55 8 41	2872
	α Arietis E.	102 37 21	2719	101 1 6	2709	99 24 38	2699	97 47 57	2689
3	Spica W.	103 23 8	2596	105 2 9	2587	106 41 23	2578	108 20 48	2569
	Antares W.	58 3 9	2628	59 41 26	2618	61 19 56	2609	62 58 39	2600
	JUPITER W.	28 22 33	2591	30 1 40	2579	31 41 4	2568	33 20 43	2556
	α Pegasi E.	47 24 32	2889	45 51 59	2898	44 19 37	2908	42 47 28	2920
	α Arietis E.	89 41 24	2644	88 3 29	2636	86 25 23	2627	84 47 5	2619
4	Antares W.	71 15 23	2555	72 55 20	2546	74 35 29	2538	76 15 49	2530
	JUPITER W.	41 42 41	2507	43 23 45	2498	45 5 1	2489	46 46 30	2480
	SATURN W.	36 10 6	2527	37 50 41	2518	39 31 29	2508	41 12 31	2499
	α Arietis E.	76 32 50	2580	74 53 28	2573	73 13 57	2566	71 34 16	2559
	Aldebaran E.	109 40 36	2540	108 0 18	2531	106 19 48	2523	104 39 7	2515
5	Antares W.	84 40 18	2491	86 21 44	2483	88 3 21	2476	89 45 8	2469
	JUPITER W.	55 16 56	2439	56 59 35	2431	58 42 25	2421	60 25 26	2416
	SATURN W.	49 40 44	2457	51 22 58	2449	53 5 23	2441	54 47 59	2433
	α Arietis E.	63 13 36	2530	61 33 4	2524	59 52 24	2519	58 11 37	2515
	Aldebaran E.	96 12 58	2477	94 31 12	2470	92 49 16	2462	91 7 9	2455
	SUN E.	130 23 35	2799	128 49 6	2791	127 14 26	2782	125 39 35	2774
6	Antares W.	98 16 32	2434	99 59 18	2428	101 42 12	2422	103 25 16	2415
	JUPITER W.	69 3 10	2380	70 47 13	2373	72 31 27	2366	74 15 51	2359
	SATURN W.	63 23 40	2396	65 7 20	2389	66 51 9	2382	68 35 9	2376
	α Arietis E.	49 46 16	2497	48 4 59	2495	46 23 39	2494	44 42 18	2493
	Aldebaran E.	82 34 5	2420	80 50 59	2414	79 7 44	2407	77 24 19	2400
	SUN E.	117 42 40	2735	116 6 46	2727	114 30 42	2719	112 54 27	2712
7	JUPITER W.	83 0 12	2327	84 45 32	2321	86 31 1	2315	88 16 39	2309
	SATURN W.	77 17 32	2343	79 2 29	2337	80 47 35	2331	82 32 50	2324
	α Arietis E.	36 15 46	2508	34 34 43	2516	32 53 52	2526	31 13 15	2537
	Aldebaran E.	68 44 55	2369	67 0 36	2363	65 16 8	2357	63 31 32	2351
	SUN E.	104 50 52	2677	103 13 41	2670	101 36 21	2663	99 58 51	2657
8	JUPITER W.	97 6 59	2280	98 53 28	2274	100 40 5	2269	102 26 50	2264
	SATURN W.	91 21 17	2296	93 7 23	2289	94 53 38	2284	96 40 1	2279
	Fomalhaut W.	47 30 31	3242	48 55 51	3188	50 22 15	3138	51 49 39	3092
	Aldebaran E.	54 46 29	2325	53 1 6	2320	51 15 36	2316	49 30 0	2311
	SUN E.	91 49 15	2625	90 10 54	2620	88 32 27	2614	86 53 51	2608
9	SATURN W.	105 33 44	2256	107 20 49	2251	109 8 0	2247	110 55 18	2243
	Fomalhaut W.	59 19 4	2918	60 51 0	2891	62 23 30	2866	63 56 32	2844
	Aldebaran E.	40 40 29	2294	38 54 20	2291	37 8 8	2289	35 21 53	2287
	SUN E.	78 39 0	2583	76 59 42	2578	75 20 17	2574	73 40 46	2570

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
10	Fomalhaut W.	65 30 3	2824	67 4 0	2805	68 38 21	2788	70 13 5	2772
	α Pegasi W.	46 5 34	2543	47 45 47	2524	49 26 28	2506	51 7 33	2490
	SUN E.	72 1 10	2566	70 21 28	2563	68 41 42	2559	67 1 51	2556
11	Fomalhaut W.	78 11 9	2717	79 47 27	2710	81 23 53	2704	83 0 28	2699
	α Pegasi W.	59 37 57	2430	61 20 49	2422	63 3 52	2414	64 47 7	2407
	SUN E.	58 41 41	2545	57 1 30	2544	55 21 19	2543	53 41 6	2543
12	Fomalhaut W.	91 4 32	2692	92 41 23	2695	94 18 10	2698	95 54 53	2702
	α Pegasi W.	73 25 19	2387	75 9 13	2385	76 53 9	2384	78 37 7	2383
	SUN E.	45 20 8	2549	43 40 2	2551	42 0 0	2555	40 20 3	2559
13	Fomalhaut W.	103 56 25	2745	105 32 5	2757	107 7 30	2771	108 42 36	2787
	α Pegasi W.	87 16 46	2391	89 0 33	2395	90 44 15	2401	92 27 49	2406
	SUN E.	32 1 59	2591	30 22 51	2599	28 43 54	2610	27 5 12	2623
17	SUN W.	20 37 38	2975	22 8 22	2980	23 39 1	2936	25 9 32	2993
	Spica E.	68 10 28	2551	66 30 26	2566	64 50 44	2580	63 11 21	2594
	Antares E.	113 34 22	2580	111 55 0	2594	110 15 57	2608	108 37 13	2621
18	SUN W.	32 39 25	3045	34 8 42	3057	35 37 44	3069	37 6 31	3082
	Spica E.	54 59 25	2667	53 22 1	2682	51 44 57	2696	50 8 12	2710
	Antares E.	100 28 15	2692	98 51 25	2707	97 14 55	2721	95 38 43	2735
19	SUN W.	44 26 23	3150	45 53 32	3164	47 20 24	3178	48 47 0	3191
	Spica E.	42 9 13	2782	40 34 21	2795	38 59 47	2808	37 25 30	2822
	Antares E.	87 42 27	2806	86 8 7	2820	84 34 6	2834	83 0 22	2847
	JUPITER E.	115 26 17	2753	113 50 47	2766	112 15 35	2780	110 40 41	2793
	SATURN E.	121 41 51	2772	120 6 47	2785	118 31 59	2797	116 57 28	2809
20	SUN W.	55 56 4	3256	57 21 7	3268	58 45 56	3280	60 10 31	3291
	Regulus W.	24 50 25	2993	26 20 47	2995	27 51 6	2997	29 21 22	3000
	Spica E.	29 38 21	2885	28 5 43	2897	26 33 21	2909	25 1 13	2920
	Antares E.	75 15 59	2912	73 43 56	2924	72 12 8	2936	70 40 35	2947
	JUPITER E.	102 50 22	2855	101 17 6	2867	99 44 5	2878	98 11 18	2889
	SATURN E.	109 8 46	2870	107 35 49	2881	106 3 6	2893	104 30 38	2904
21	SUN W.	67 10 11	3345	68 33 31	3354	69 56 40	3363	71 19 39	3372
	Regulus W.	36 51 31	3025	38 21 13	3030	39 50 48	3035	41 20 18	3040
	Antares E.	63 6 24	3002	61 36 14	3012	60 6 16	3021	58 36 30	3030
	JUPITER E.	90 30 49	2940	88 59 21	2949	87 28 4	2957	85 56 58	2965
	SATURN E.	96 51 40	2954	95 20 29	2963	93 49 30	2971	92 18 41	2979
22	SUN W.	78 12 13	3409	79 34 19	3414	80 56 20	3420	82 18 14	3425
	Regulus W.	48 46 9	3065	50 15 2	3069	51 43 49	3073	53 12 32	3076
	Antares E.	51 10 24	3073	49 41 42	3080	48 13 8	3087	46 44 43	3094
	JUPITER E.	78 23 51	3000	76 53 39	3006	75 23 34	3011	73 53 35	3016
	SATURN E.	84 47 0	3014	83 17 5	3019	81 47 16	3024	80 17 34	3029
23	SUN W.	89 6 31	3441	90 28 1	3444	91 49 27	3446	93 10 52	3447
	Regulus W.	60 35 14	3087	62 3 39	3088	63 32 2	3089	65 0 25	3089
	MARS W.	23 30 58	3340	24 54 23	3337	26 17 52	3333	27 41 25	3330

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
10	Fomalhaut	W.	71 48 9	2759	73 23 31	2747	74 59 9	2735	76 35 2	2725
	a Pegasi	W.	52 49 0	2475	54 30 48	2462	56 12 54	2450	57 55 18	2439
	SUN	E.	65 21 56	2553	63 41 57	2551	62 1 55	2549	60 21 49	2547
11	Fomalhaut	W.	84 37 11	2695	86 13 58	2692	87 50 48	2691	89 27 40	2691
	a Pegasi	W.	66 30 32	2402	68 14 4	2397	69 57 43	2393	71 41 28	2390
	SUN	E.	52 0 52	2543	50 20 38	2541	48 40 25	2545	47 0 15	2546
12	Fomalhaut	W.	97 34 31	2707	99 8 1	2715	100 44 21	2724	102 20 30	2734
	a Pegasi	W.	80 21 6	2384	82 5 4	2385	83 49 1	2387	85 32 55	2389
	SUN	E.	38 40 11	2564	37 0 26	2569	35 20 48	2575	33 41 19	2582
13	Fomalhaut	W.	110 17 20	2805	111 51 40	2825	113 25 36	2846	114 59 5	2868
	a Pegasi	W.	94 11 15	2412	95 54 33	2418	97 37 42	2425	99 20 41	2433
	SUN	E.	25 26 48	2638	23 48 44	2655	22 11 3	2675	20 33 49	2697
17	SUN	W.	26 39 53	3001	28 10 5	3010	29 40 5	3021	31 9 52	3033
	Spica	E.	61 32 18	2609	59 53 35	2624	58 15 12	2638	56 37 9	2652
	Antares	E.	106 58 47	2635	105 20 41	2649	103 42 53	2663	102 5 24	2678
18	SUN	W.	38 35 3	3096	40 3 18	3110	41 31 15	3123	42 58 57	3136
	Spica	E.	48 31 46	2725	46 55 39	2740	45 19 52	2754	43 44 23	2768
	Antares	E.	94 2 50	2750	92 27 16	2765	90 52 2	2779	89 17 6	2792
19	SUN	W.	50 13 20	3204	51 39 24	3217	53 5 12	3230	54 30 46	3243
	Spica	E.	35 51 31	2835	34 17 49	2848	32 44 24	2861	31 11 15	2873
	Antares	E.	81 26 55	2861	79 53 46	2874	78 20 54	2887	76 48 18	2900
	JUPITER	E.	109 6 5	2866	107 31 45	2818	105 57 41	2831	104 23 54	2843
	SATURN	E.	115 23 12	2821	113 49 12	2833	112 15 28	2845	110 41 59	2858
20	SUN	W.	61 34 53	3303	62 59 1	3314	64 22 56	3324	65 46 39	3334
	Regulus	W.	30 51 35	3004	32 21 43	3009	33 51 45	3014	35 21 41	3019
	Spica	E.	23 29 20	2931	21 57 41	2942	20 26 15	2952	18 55 2	2961
	Antares	E.	69 9 16	2959	67 38 12	2970	66 7 23	2981	64 36 47	2992
	JUPITER	E.	96 38 46	2900	95 6 27	2910	93 34 22	2920	92 2 29	2930
	SATURN	E.	102 58 24	2915	101 26 24	2925	99 54 37	2935	98 23 2	2945
21	SUN	W.	72 42 28	3380	74 5 7	3388	75 27 37	3395	76 49 59	3402
	Regulus	W.	42 49 42	3046	44 18 58	3051	45 48 7	3056	47 17 11	3061
	Antares	E.	57 6 55	3039	55 37 30	3048	54 8 16	3057	52 39 15	3066
	JUPITER	E.	84 26 2	2973	82 55 16	2981	81 24 39	2988	79 54 11	2994
	SATURN	E.	90 48 2	2987	89 17 33	2994	87 47 14	3001	86 17 3	3008
22	SUN	W.	83 40 2	3429	85 1 46	3433	86 23 24	3436	87 44 59	3439
	Regulus	W.	54 41 11	3079	56 9 46	3082	57 38 18	3084	59 6 47	3086
	Antares	E.	45 16 26	3101	43 48 18	3107	42 20 17	3114	40 52 24	3120
	JUPITER	E.	72 23 42	3020	70 53 55	3024	69 24 12	3027	67 54 34	3030
	SATURN	E.	78 47 57	3033	77 18 26	3037	75 48 59	3040	74 19 36	3043
23	SUN	W.	94 32 15	3447	95 53 38	3446	97 15 2	3445	98 36 26	3444
	Regulus	W.	66 28 48	3089	67 57 11	3088	69 25 34	3087	70 53 59	3085
	MARS	W.	29 5 2	3326	30 28 43	3323	31 52 28	3319	33 16 17	3315

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
23	Antares	E.	39 24 39	3127	37 57 2	3133	36 29 33	3139	35 2 11	3145
	JUPITER	E.	66 24 59	3033	64 55 28	3035	63 25 59	3037	61 56 32	3038
	SATURN	E.	72 50 17	3046	71 21 1	3048	69 51 48	3049	68 22 36	3050
24	SUN	W.	99 57 51	3443	101 19 18	3441	102 40 47	3439	104 2 19	3446
	Regulus	W.	72 22 27	3083	73 50 57	3081	75 19 29	3078	76 48 5	3074
	MARS	W.	34 40 11	3312	36 4 9	3308	37 28 11	3303	38 52 19	3299
	Spica	W.	18 23 24	3063	19 52 19	3060	21 21 18	3057	22 50 20	3054
	JUPITER	E.	54 29 27	3037	53 0 0	3036	51 30 32	3034	50 1 1	3032
	SATURN	E.	60 56 44	3048	59 27 32	3046	57 58 17	3044	56 28 59	3042
25	SUN	W.	110 51 3	3414	112 13 4	3408	113 35 11	3402	114 57 25	3395
	Regulus	W.	84 12 16	3052	85 41 24	3046	87 10 39	3040	88 40 2	3034
	MARS	W.	45 54 26	3270	47 19 12	3263	48 44 6	3256	50 9 9	3249
	Spica	W.	30 16 35	3032	31 46 8	3027	33 15 47	3021	34 45 34	3014
	JUPITER	E.	42 32 37	3014	41 2 42	3010	39 32 43	3006	38 2 38	3001
	SATURN	E.	49 1 32	3023	47 31 48	3018	46 1 58	3013	44 32 1	3008
26	SUN	W.	121 50 39	3357	123 13 45	3348	124 37 1	3339	126 0 27	3330
	Regulus	W.	96 9 5	2996	97 39 23	2987	99 9 52	2978	100 40 32	2969
	MARS	W.	57 16 41	3206	58 42 43	3197	60 8 55	3187	61 35 20	3177
	Spica	W.	42 16 40	2976	43 47 23	2967	45 18 16	2958	46 49 21	2948
	JUPITER	E.	30 30 37	2975	28 59 53	2970	27 29 3	2966	25 58 7	2962
	SATURN	E.	37 0 28	2976	35 29 45	2969	33 58 54	2962	32 27 54	2955
27	MARS	W.	68 50 34	3122	70 18 17	3110	71 46 15	3098	73 14 27	3086
	Spica	W.	54 27 55	2898	56 0 17	2887	57 32 53	2875	59 5 44	2864
	Fomalhaut	E.	77 32 43	3391	76 10 16	3387	74 47 45	3383	73 25 9	3380
	α Pegasi	E.	94 16 23	3051	92 47 13	3039	91 17 49	3028	89 48 11	3017
28	MARS	W.	80 39 16	3022	82 9 1	3009	83 39 3	2996	85 9 21	2982
	Spica	W.	66 53 45	2804	68 28 8	2791	70 2 48	2779	71 37 44	2766
	Antares	W.	22 10 45	2973	23 41 32	2942	25 12 57	2913	26 44 59	2887
	Fomalhaut	E.	66 31 29	3375	65 8 44	3378	63 46 2	3381	62 23 24	3386
	α Pegasi	E.	82 16 29	2960	80 45 26	2949	79 14 9	2939	77 42 39	2928
29	MARS	W.	92 45 3	2916	94 17 2	2902	95 49 18	2889	97 21 52	2876
	Spica	W.	79 36 36	2702	81 13 13	2689	82 50 8	2676	84 27 20	2663
	Antares	W.	34 32 58	2779	36 7 54	2760	37 43 15	2742	39 19 0	2725
	α Arietis	E.	113 10 58	2763	111 35 41	2748	110 0 4	2733	108 24 8	2719
30	MARS	W.	105 8 54	2810	106 43 9	2798	108 17 40	2785	109 52 28	2772
	Spica	W.	92 37 37	2601	94 16 31	2588	95 55 42	2576	97 35 10	2564
	Antares	W.	47 23 12	2646	49 1 5	2632	50 39 16	2618	52 17 47	2604
	JUPITER	W.	20 42 56	2634	22 21 5	2615	23 59 40	2597	25 38 40	2580
	α Arietis	E.	100 19 59	2653	98 42 16	2641	97 4 17	2628	95 26 0	2616
31	Spica	W.	105 56 33	2507	107 37 37	2496	109 18 56	2486	111 0 30	2475
	Antares	W.	60 34 58	2540	62 15 16	2528	63 55 51	2516	65 36 42	2505
	JUPITER	W.	33 59 15	2505	35 40 21	2492	37 21 46	2480	39 3 28	2468
	SATURN	W.	27 19 49	2524	29 0 29	2510	30 41 29	2496	32 22 48	2483
	α Arietis	E.	87 10 31	2559	85 30 39	2548	83 50 32	2538	82 10 11	2528

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
23	Antares	E.	33 34 56	3152	32 7 49	3159	30 40 51	3167	29 14 2	3174
	JUPITER	E.	60 27 6	3039	58 57 41	3039	57 28 17	3039	55 58 52	3039
	SATURN	E.	66 53 25	3051	65 24 15	3052	63 55 6	3051	62 25 56	3049
24	SUN	W.	105 23 55	3432	106 45 35	3428	108 7 19	3424	109 29 8	3419
	Regulus	W.	78 16 46	3071	79 45 31	3057	81 14 20	3063	82 43 15	3058
	MARS	W.	40 16 32	3294	41 40 50	3288	43 5 15	3282	44 29 47	3276
	Spica	W.	24 19 25	3051	25 48 35	3047	27 17 49	3043	28 47 9	3038
	JUPITER	E.	48 31 28	3029	47 1 51	3026	45 32 11	3022	44 2 26	3018
	SATURN	E.	54 59 38	3039	53 30 14	3035	52 0 45	3031	50 31 11	3027
25	SUN	W.	116 19 47	3388	117 42 17	3381	119 4 55	3373	120 27 42	3365
	Regulus	W.	90 9 33	3027	91 39 12	3020	93 9 0	3012	94 38 57	3004
	MARS	W.	51 34 20	3242	52 59 41	3234	54 25 10	3225	55 50 50	3216
	Spica	W.	36 15 30	3007	37 45 34	3000	39 15 46	2993	40 46 8	2985
	JUPITER	E.	36 32 26	2996	35 2 9	2991	33 31 45	2985	32 1 14	2980
	SATURN	E.	43 1 58	3002	41 31 47	2996	40 1 29	2989	38 31 3	2982
26	SUN	W.	127 24 4	3320	128 47 52	3310	130 11 51	3300	131 36 2	3290
	Regulus	W.	102 11 23	2960	103 42 26	2950	105 13 41	2940	106 45 9	2930
	MARS	W.	63 1 57	3166	64 28 47	3155	65 55 49	3144	67 23 5	3133
	Spica	W.	48 20 39	2939	49 52 9	2929	51 23 51	2919	52 55 46	2908
	JUPITER	E.	24 27 6	2959	22 56 2	2957	21 24 55	2954	19 53 45	2952
	SATURN	E.	30 56 45	2949	29 25 28	2942	27 54 3	2935	26 22 29	2929
27	MARS	W.	74 42 54	3073	76 11 36	3061	77 40 33	3048	79 9 46	3035
	Spica	W.	60 38 49	2852	62 12 10	2840	63 45 46	2828	65 19 38	2816
	Fomalhaut	E.	72 2 29	3378	70 39 47	3376	69 17 2	3374	67 54 16	3373
	α Pegasi	E.	88 18 19	3005	86 48 13	2994	85 17 52	2983	83 47 18	2971
28	MARS	W.	86 39 56	2969	88 10 48	2956	89 41 56	2942	91 13 21	2929
	Spica	W.	73 12 56	2753	74 48 26	2740	76 24 12	2727	78 0 16	2715
	Antares	W.	28 17 35	2862	29 50 43	2839	31 24 21	2818	32 58 26	2798
	Fomalhaut	E.	61 0 51	3393	59 38 26	3401	58 16 11	3411	56 54 8	3423
	α Pegasi	E.	76 10 55	2917	74 38 58	2907	73 6 48	2897	71 34 26	2887
29	MARS	W.	98 54 42	2862	100 27 50	2849	102 1 14	2836	103 34 56	2823
	Spica	W.	86 4 49	2651	87 42 35	2638	89 20 39	2625	90 59 0	2613
	Antares	W.	40 55 7	2708	42 31 36	2692	44 8 27	2676	45 45 39	2661
	α Arietis	E.	106 47 54	2706	105 11 22	2693	103 34 33	2679	101 57 25	2666
30	MARS	W.	111 27 33	2760	113 2 53	2748	114 38 28	2735	116 14 21	2723
	Spica	W.	99 14 54	2553	100 54 54	2541	102 35 11	2529	104 15 44	2518
	Antares	W.	53 56 38	2590	55 35 47	2577	57 15 13	2564	58 54 57	2552
	JUPITER	W.	27 18 3	2563	28 57 50	2547	30 37 58	2532	32 18 27	2518
	α Arietis	E.	93 47 26	2604	92 8 36	2592	90 29 30	2580	88 50 8	2569
31	Spica	W.	112 42 19	2465	114 24 22	2455	116 6 39	2445	117 49 10	2436
	Antares	W.	67 17 48	2494	68 59 9	2484	70 40 45	2473	72 22 36	2463
	JUPITER	W.	40 45 27	2457	42 27 42	2446	44 10 11	2435	45 52 56	2425
	SATURN	W.	34 4 26	2470	35 46 21	2459	37 28 32	2447	39 11 0	2436
	α Arietis	E.	80 29 36	2518	78 48 48	2509	77 7 47	2500	75 26 33	2491

AT GREENWICH APPARENT NOON.

THE SUN'S															
Day of the Week.	Day of the Month.	Apparent Right Ascension.			Diff. for 1 Hour.	Apparent Declination.			Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.		
		h	m	s	s	°	'	"	"	'	"	m	s	s	
Thur.	1	8	43	44.82	9.718	N. 18	8	37.9	-37.41	15	46.75	66.61	6	8.09	0.138
Frid.	2	8	47	37.73	9.693	17	53	31.1	38.14	15	46.88	66.52	6	4.46	0.163
Sat.	3	8	51	30.05	9.668	17	38	6.8	38.87	15	47.01	66.43	6	0.24	0.188
SUN.	4	8	55	21.76	9.643	17	22	25.3	-39.59	15	47.14	66.34	5	55.42	0.213
Mon.	5	8	59	12.90	9.619	17	6	26.7	40.29	15	47.28	66.25	5	50.01	0.237
Tues.	6	9	3	3.46	9.595	16	50	11.3	40.98	15	47.42	66.16	5	44.03	0.261
Wed.	7	9	6	53.44	9.571	16	33	39.6	-41.66	15	47.56	66.07	5	37.47	0.285
Thur.	8	9	10	42.85	9.547	16	16	51.7	42.32	15	47.71	65.99	5	30.35	0.309
Frid.	9	9	14	31.69	9.523	15	59	48.2	42.97	15	47.86	65.90	5	22.65	0.332
Sat.	10	9	18	19.97	9.500	15	42	29.0	-43.60	15	48.02	65.82	5	14.40	0.356
SUN.	11	9	22	7.69	9.477	15	24	54.6	44.22	15	48.18	65.74	5	5.59	0.379
Mon.	12	9	25	54.85	9.454	15	7	5.5	44.84	15	48.35	65.66	4	56.22	0.402
Tues.	13	9	29	41.45	9.431	14	49	1.8	-45.44	15	48.51	65.58	4	46.29	0.425
Wed.	14	9	33	27.50	9.408	14	30	44.0	46.03	15	48.68	65.50	4	35.81	0.448
Thur.	15	9	37	13.01	9.385	14	12	12.3	46.60	15	48.85	65.42	4	24.80	0.470
Frid.	16	9	40	57.97	9.363	13	53	27.1	-47.15	15	49.03	65.35	4	13.24	0.493
Sat.	17	9	44	42.40	9.341	13	34	28.6	47.69	15	49.21	65.27	4	1.15	0.515
SUN.	18	9	48	26.31	9.319	13	15	17.3	48.23	15	49.40	65.20	3	48.54	0.537
Mon.	19	9	52	9.70	9.297	12	55	53.5	-48.75	15	49.59	65.12	3	35.41	0.558
Tues.	20	9	55	52.58	9.276	12	36	17.4	49.25	15	49.78	65.05	3	21.78	0.579
Wed.	21	9	59	34.96	9.256	12	16	29.5	49.74	15	49.97	64.98	3	7.66	0.599
Thur.	22	10	3	16.86	9.236	11	56	30.0	-50.21	15	50.17	64.92	2	53.04	0.619
Frid.	23	10	6	58.28	9.217	11	36	19.2	50.67	15	50.37	64.85	2	37.94	0.638
Sat.	24	10	10	39.26	9.198	11	15	57.4	51.13	15	50.58	64.79	2	22.41	0.657
SUN.	25	10	14	19.78	9.180	10	55	25.0	-51.57	15	50.78	64.72	2	6.43	0.675
Mon.	26	10	17	59.88	9.162	10	34	42.2	51.99	15	50.99	64.66	1	50.02	0.693
Tues.	27	10	21	39.56	9.145	10	13	49.5	52.40	15	51.20	64.60	1	33.19	0.710
Wed.	28	10	25	18.84	9.129	9	52	47.1	52.80	15	51.42	64.54	1	15.96	0.726
Thur.	29	10	28	57.74	9.114	9	31	35.1	53.19	15	51.64	64.49	0	58.36	0.741
Frid.	30	10	32	36.30	9.100	9	10	14.2	53.56	15	51.86	64.44	0	40.42	0.755
Sat.	31	10	36	14.52	9.086	8	48	44.4	53.92	15	52.08	64.39	0	22.14	0.769
SUN.	32	10	39	52.42	9.073	N. 8	27	6.0	-54.27	15	52.31	64.34	0	3.53	0.781

NOTE.—The mean time of semidiameter passing may be found by subtracting 0.18 from the sidereal time.

The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing.

AT GREENWICH MEAN NOON.

THE SUN'S

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ' "	"	m s	s	h m s
Thur.	1	8 43 43.82	+ 9.718	N. 18 8 41.7	- 37.41	6 8.11	+ 0.138	8 37 35.71
Frid.	2	8 47 36.74	9.693	17 53 35.0	38.14	6 4.48	0.163	8 41 32.26
Sat.	3	8 51 29.08	9.668	17 38 10.7	38.87	6 0.26	0.188	8 45 28.82
SUN.	4	8 55 20.81	+ 9.643	17 22 29.2	- 39.59	5 55.44	+ 0.213	8 49 25.37
Mon.	5	8 59 11.96	9.619	17 6 30.6	40.29	5 50.04	0.237	8 53 21.93
Tues.	6	9 3 2.54	9.595	16 50 15.2	40.98	5 44.06	0.261	8 57 18.48
Wed.	7	9 6 52.54	+ 9.571	16 33 43.5	- 41.66	5 37.50	+ 0.285	9 1 15.04
Thur.	8	9 10 41.97	9.547	16 16 55.6	42.33	5 30.38	0.309	9 5 11.59
Frid.	9	9 14 30.83	9.524	15 59 52.0	42.98	5 22.68	0.332	9 9 8.15
Sat.	10	9 18 19.13	+ 9.501	15 42 32.8	- 43.61	5 14.43	+ 0.356	9 13 4.70
SUN.	11	9 22 6.87	9.478	15 24 58.4	44.23	5 5.62	0.379	9 17 1.26
Mon.	12	9 25 54.06	9.455	15 7 9.2	44.85	4 56.25	0.402	9 20 57.81
Tues.	13	9 29 40.69	+ 9.432	14 49 5.4	- 45.45	4 46.32	+ 0.425	9 24 54.36
Wed.	14	9 33 26.77	9.409	14 30 47.5	46.04	4 35.85	0.448	9 28 50.92
Thur.	15	9 37 12.31	9.386	14 12 15.7	46.61	4 24.84	0.470	9 32 47.47
Frid.	16	9 40 57.31	+ 9.364	13 53 30.4	- 47.16	4 13.28	+ 0.493	9 36 44.03
Sat.	17	9 44 41.77	9.342	13 34 31.8	47.70	4 1.19	0.515	9 40 40.58
SUN.	18	9 48 25.72	9.320	13 15 20.4	48.24	3 48.58	0.537	9 44 37.13
Mon.	19	9 52 9.14	+ 9.299	12 55 56.4	- 48.76	3 35.45	+ 0.558	9 48 33.69
Tues.	20	9 55 52.06	9.278	12 36 20.2	49.26	3 21.82	0.579	9 52 30.24
Wed.	21	9 59 34.48	9.258	12 16 32.1	49.75	3 7.69	0.599	9 56 26.80
Thur.	22	10 3 16.42	+ 9.238	11 56 32.4	- 50.22	2 53.07	+ 0.619	10 0 23.35
Frid.	23	10 6 57.88	9.219	11 36 21.4	50.68	2 37.97	0.638	10 4 19.90
Sat.	24	10 10 38.90	9.200	11 15 59.4	51.14	2 22.44	0.657	10 8 16.46
SUN.	25	10 14 19.46	+ 9.182	10 55 26.8	- 51.59	2 6.45	+ 0.675	10 12 13.01
Mon.	26	10 17 59.60	9.164	10 34 43.8	52.02	1 50.04	0.693	10 16 9.56
Tues.	27	10 21 39.32	9.147	10 13 50.9	52.42	1 33.21	0.710	10 20 6.11
Wed.	28	10 25 18.65	+ 9.131	9 52 48.2	- 52.81	1 15.98	+ 0.726	10 24 2.67
Thur.	29	10 28 57.59	9.116	9 31 36.0	53.19	0 58.37	0.741	10 27 59.22
Frid.	30	10 32 36.20	9.102	9 10 14.8	53.57	0 40.43	0.755	10 31 55.77
Sat.	31	10 36 14.46	9.088	8 48 44.7	53.93	0 22.14	0.769	10 35 52.33
SUN.	32	10 39 52.41	+ 9.075	N. 8 27 6.0	- 54.28	0 3.53	+ 0.781	10 39 48.88

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
 The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing.

Diff. for 1 Hour,
 + 9^s.8565.
 (Table III.)

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.	
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.				
		λ	λ'						
									$^{\circ}$
1	213	128 30 40.1	29 56.6	143.48	+ 0.66	0.0063856	-23.2	h m s 15 19 53.18	
2	214	129 28 4.1	27 20.5	143.52	0.63	0.0063292	23.7	15 15 57.27	
3	215	130 25 29.2	24 45.4	143.57	0.58	0.0062715	24.3	15 12 1.36	
4	216	131 22 55.4	22 11.5	143.62	+ 0.49	0.0062126	-24.9	15 8 5.45	
5	217	132 20 22.8	19 38.8	143.67	0.37	0.0061523	25.5	15 4 9.54	
6	218	133 17 51.5	17 7.4	143.73	0.25	0.0060904	26.1	15 0 13.63	
7	219	134 15 21.6	14 37.4	143.78	+ 0.10	0.0060268	-26.8	14 56 17.72	
8	220	135 12 53.1	12 8.7	143.84	- 0.04	0.0059616	27.6	14 52 21.82	
9	221	136 10 26.0	9 41.4	143.90	* 0.18	0.0058944	28.4	14 48 25.91	
10	222	137 8 0.2	7 15.5	143.96	- 0.30	0.0058252	-29.3	14 44 30.00	
11	223	138 5 35.8	4 51.1	144.01	0.39	0.0057539	30.2	14 40 34.09	
12	224	139 3 12.8	2 27.9	144.06	0.47	0.0056805	31.1	14 36 38.18	
13	225	140 0 51.1	0 6.1	144.12	- 0.51	0.0056048	-32.0	14 32 42.27	
14	226	140 58 30.7	57 45.6	144.18	0.52	0.0055270	32.9	14 28 46.36	
15	227	141 56 11.6	55 26.3	144.23	0.51	0.0054469	33.8	14 24 50.46	
16	228	142 53 53.6	53 8.3	144.28	- 0.46	0.0053646	-34.7	14 20 54.55	
17	229	143 51 36.9	50 51.4	144.33	0.40	0.0052803	35.6	14 16 58.64	
18	230	144 49 21.3	48 35.7	144.37	0.31	0.0051939	36.4	14 13 2.73	
19	231	145 47 6.8	46 21.1	144.42	- 0.21	0.0051057	-37.1	14 9 6.82	
20	232	146 44 53.6	44 7.7	144.47	- 0.10	0.0050157	37.8	14 5 10.92	
21	233	147 42 41.4	41 55.5	144.52	+ 0.01	0.0049241	38.5	14 1 15.01	
22	234	148 40 30.5	39 44.5	144.57	+ 0.13	0.0048310	-39.1	13 57 19.10	
23	235	149 38 20.8	37 34.6	144.62	0.23	0.0047364	39.7	13 53 23.19	
24	236	150 36 12.3	35 26.0	144.67	0.33	0.0046406	40.2	13 49 27.29	
25	237	151 34 5.0	33 18.6	144.72	+ 0.40	0.0045435	-40.6	13 45 31.38	
26	238	152 31 59.0	31 12.6	144.78	0.46	0.0044455	41.0	13 41 35.47	
27	239	153 29 54.4	29 7.8	144.84	0.49	0.0043466	41.4	13 37 39.57	
28	240	154 27 51.2	27 4.5	144.90	+ 0.48	0.0042468	-41.7	13 33 43.66	
29	241	155 25 49.5	25 2.7	144.96	0.46	0.0041465	42.0	13 29 47.75	
30	242	156 23 49.4	23 2.5	145.03	0.41	0.0040455	42.2	13 25 51.84	
31	243	157 21 50.9	21 4.0	145.10	0.32	0.0039439	42.4	13 21 55.94	
32	244	158 19 54.2	19 7.2	145.18	+ 0.20	0.0038418	-42.7	13 18 0.03	
NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0.0 of the Besselian fictitious year.								Diff. for 1 Hour, —9 ^h .8296. (Table II.)	

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	' "	' "	' "	"	' "	"	h m	m	d
1	15 51.7	15 55.7	58 6.3	+ 1.28	58 20.9	+ 1.15	13 20.2	+ 2.10	16.6
2	15 59.3	16 2.4	58 34.1	1.03	58 45.5	0.88	14 10.5	2.10	17.6
3	16 5.1	16 7.3	58 55.3	0.74	59 3.4	0.60	15 1.0	2.12	18.6
4	16 9.0	16 10.3	59 9.7	+ 0.46	59 14.4	+ 0.33	15 52.4	+ 2.17	19.6
5	16 11.1	16 11.6	59 17.5	+ 0.20	59 19.2	+ 0.08	16 45.4	2.24	20.6
6	16 11.6	16 11.3	59 19.4	- 0.03	59 18.3	- 0.14	17 40.1	2.32	21.6
7	16 10.7	16 9.7	59 16.0	- 0.24	59 12.4	- 0.34	18 36.7	+ 2.38	22.6
8	16 8.4	16 6.9	59 7.7	0.44	59 1.9	0.53	19 34.5	2.42	23.6
9	16 5.0	16 2.7	58 54.9	0.63	58 46.7	0.73	20 32.5	2.40	24.6
10	16 0.2	15 57.3	58 37.4	- 0.83	58 26.8	- 0.93	21 29.3	+ 2.33	25.6
11	15 54.1	15 50.6	58 15.1	1.02	58 2.3	1.12	22 24.0	2.22	26.6
12	15 46.8	15 42.8	57 48.3	1.20	57 33.4	1.28	23 16.0	2.11	27.6
13	15 38.5	15 34.0	57 17.6	- 1.34	57 1.1	- 1.39	0		28.6
14	15 29.4	15 24.7	56 44.2	1.43	56 26.9	1.44	0 5.2	+ 2.00	0.1
15	15 20.0	15 15.4	56 9.7	1.43	55 52.7	1.39	0 52.0	1.91	1.1
16	15 10.9	15 6.6	55 36.2	- 1.34	55 20.6	- 1.26	1 37.1	+ 1.85	2.1
17	15 2.6	14 59.0	55 6.0	1.16	54 52.7	1.04	2 21.0	1.82	3.1
18	14 55.9	14 53.2	54 41.1	0.90	54 31.2	0.73	3 4.5	1.82	4.1
19	14 51.0	14 49.5	54 23.4	- 0.56	54 17.7	- 0.37	3 48.3	+ 1.84	5.1
20	14 48.6	14 48.3	54 14.4	- 0.18	54 13.5	+ 0.03	4 32.9	1.88	6.1
21	14 48.8	14 50.0	54 15.2	+ 0.24	54 19.4	0.46	5 18.7	1.94	7.1
22	14 51.8	14 54.4	54 26.2	+ 0.67	54 35.6	+ 0.88	6 6.0	+ 2.00	8.1
23	14 57.6	15 1.5	54 47.5	1.08	55 1.7	1.28	6 54.8	2.06	9.1
24	15 5.9	15 10.9	55 18.1	1.45	55 36.5	1.61	7 44.8	2.11	10.1
25	15 16.4	15 22.3	55 56.7	+ 1.74	56 18.3	+ 1.84	8 35.8	+ 2.13	11.1
26	15 28.5	15 34.8	56 41.0	1.92	57 4.3	1.95	9 27.2	2.14	12.1
27	15 41.3	15 47.6	57 27.9	1.95	57 51.3	1.91	10 18.7	2.14	13.1
28	15 53.8	15 59.6	58 13.9	+ 1.83	58 35.3	+ 1.71	11 10.0	+ 2.14	14.1
29	16 5.0	16 9.8	58 55.0	1.55	59 12.6	1.36	12 1.4	2.15	15.1
30	16 13.9	16 17.3	59 27.7	1.15	59 40.1	0.91	12 53.2	2.17	16.1
31	16 19.8	16 21.6	59 49.5	0.65	59 55.9	+ 0.40	13 45.9	2.22	17.1
32	16 22.5	16 22.6	59 59.2	+ 0.15	59 59.5	- 0.08	14 39.8	+ 2.28	18.1

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 1.					SATURDAY 3.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	21 30 41.05	2.2002	S. 9 27 12.7	10.747	0	23 15 53.96	2.1960	S. 0 3 49.3	12.293
1	21 32 53.04	2.1994	9 16 26.2	10.804	1	23 18 5.74	2.1968	N. 0 8 28.4	12.297
2	21 35 4.98	2.1987	9 5 36.2	10.862	2	23 20 17.57	2.1976	0 20 46.3	12.300
3	21 37 16.88	2.1980	8 54 42.8	10.918	3	23 22 29.45	2.1984	0 33 4.4	12.302
4	21 39 28.74	2.1973	8 43 46.1	10.973	4	23 24 41.38	2.1993	0 45 22.5	12.301
5	21 41 40.56	2.1967	8 32 46.1	11.027	5	23 26 53.37	2.2003	0 57 40.5	12.299
6	21 43 52.34	2.1960	8 21 42.9	11.079	6	23 29 5.42	2.2013	1 9 58.4	12.297
7	21 46 4.08	2.1954	8 10 36.6	11.131	7	23 31 17.53	2.2023	1 22 16.2	12.294
8	21 48 15.79	2.1948	7 59 27.2	11.182	8	23 33 29.70	2.2034	1 34 33.7	12.289
9	21 50 27.46	2.1943	7 48 14.8	11.232	9	23 35 41.94	2.2046	1 46 50.9	12.283
10	21 52 39.10	2.1937	7 36 59.4	11.280	10	23 37 54.25	2.2057	1 59 7.7	12.276
11	21 54 50.70	2.1932	7 25 41.2	11.327	11	23 40 6.62	2.2068	2 11 24.0	12.267
12	21 57 2.28	2.1928	7 14 20.2	11.373	12	23 42 19.07	2.2081	2 23 39.7	12.257
13	21 59 13.83	2.1923	7 2 56.4	11.419	13	23 44 31.59	2.2093	2 35 54.8	12.247
14	22 1 25.35	2.1918	6 51 29.9	11.463	14	23 46 44.19	2.2107	2 48 9.3	12.235
15	22 3 36.84	2.1913	6 40 0.8	11.506	15	23 48 56.87	2.2121	3 0 23.0	12.221
16	22 5 48.31	2.1910	6 28 29.2	11.548	16	23 51 9.64	2.2135	3 12 35.8	12.206
17	22 7 59.76	2.1906	6 16 55.0	11.590	17	23 53 22.49	2.2149	3 24 47.7	12.190
18	22 10 11.18	2.1903	6 5 18.4	11.630	18	23 55 35.43	2.2163	3 36 58.6	12.172
19	22 12 22.59	2.1900	5 53 39.4	11.668	19	23 57 48.45	2.2178	3 49 8.5	12.155
20	22 14 33.98	2.1898	5 41 58.2	11.706	20	0 0 1.57	2.2194	4 1 17.2	12.135
21	22 16 45.36	2.1895	5 30 14.7	11.743	21	0 2 14.78	2.2210	4 13 24.7	12.115
22	22 18 56.72	2.1893	5 18 29.0	11.778	22	0 4 28.09	2.2227	4 25 31.0	12.093
23	22 21 8.07	2.1891	S. 5 6 41.3	11.813	23	0 6 41.50	2.2243	N. 4 37 35.9	12.069
FRIDAY 2.					SUNDAY 4.				
0	22 23 19.41	2.1889	S. 4 54 51.5	11.846	0	0 8 55.01	2.2261	N. 4 49 39.3	12.044
1	22 25 30.74	2.1888	4 42 59.8	11.878	1	0 11 8.63	2.2278	5 1 41.2	12.018
2	22 27 42.07	2.1888	4 31 6.1	11.910	2	0 13 22.35	2.2297	5 13 41.5	11.992
3	22 29 53.39	2.1887	4 19 10.6	11.939	3	0 15 36.19	2.2316	5 25 40.2	11.964
4	22 32 4.71	2.1887	4 7 13.4	11.968	4	0 17 50.14	2.2334	5 37 37.2	11.934
5	22 34 16.03	2.1887	3 55 14.5	11.995	5	0 20 4.20	2.2353	5 49 32.3	11.903
6	22 36 27.35	2.1888	3 43 14.0	12.021	6	0 22 18.38	2.2373	6 1 25.5	11.871
7	22 38 38.68	2.1888	3 31 12.0	12.046	7	0 24 32.67	2.2393	6 13 16.8	11.838
8	22 40 50.01	2.1889	3 19 8.5	12.071	8	0 26 47.09	2.2413	6 25 6.1	11.804
9	22 43 1.35	2.1891	3 7 3.5	12.094	9	0 29 1.63	2.2434	6 36 53.3	11.768
10	22 45 12.70	2.1893	2 54 57.2	12.115	10	0 31 16.30	2.2456	6 48 38.3	11.731
11	22 47 24.06	2.1894	2 42 49.7	12.135	11	0 33 31.10	2.2477	7 0 21.0	11.693
12	22 49 35.43	2.1897	2 30 41.0	12.154	12	0 35 46.02	2.2498	7 12 1.4	11.653
13	22 51 46.82	2.1901	2 18 31.2	12.172	13	0 38 1.08	2.2521	7 23 39.4	11.613
14	22 53 58.24	2.1904	2 6 20.3	12.190	14	0 40 16.27	2.2543	7 35 14.9	11.571
15	22 56 9.67	2.1908	1 54 8.4	12.206	15	0 42 31.59	2.2566	7 46 47.9	11.528
16	22 58 21.13	2.1913	1 41 55.6	12.220	16	0 44 47.06	2.2590	7 58 18.3	11.483
17	23 0 32.62	2.1917	1 29 42.0	12.233	17	0 47 2.67	2.2613	8 9 45.9	11.438
18	23 2 44.13	2.1922	1 17 27.6	12.246	18	0 49 18.41	2.2636	8 21 10.8	11.392
19	23 4 55.68	2.1928	1 5 12.5	12.257	19	0 51 34.30	2.2661	8 32 32.9	11.343
20	23 7 7.26	2.1933	0 52 56.8	12.266	20	0 53 50.34	2.2686	8 43 52.0	11.294
21	23 9 18.88	2.1939	0 40 40.6	12.274	21	0 56 6.53	2.2711	8 55 8.2	11.244
22	23 11 30.53	2.1945	0 28 23.9	12.282	22	0 58 22.87	2.2735	9 6 21.3	11.192
23	23 13 42.22	2.1953	0 16 6.7	12.288	23	1 0 39.35	2.2760	9 17 31.2	11.139
24	23 15 53.96	2.1960	S. 0 3 49.3	12.293	24	1 2 55.99	2.2787	N. 9 28 38.0	11.085

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 5.					WEDNESDAY 7.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	1 2 55.99	2.2787	N. 9 28 38.0	11.085	0	2 55 36.26	2.4173	N. 16 56 4.1	7.133
1	1 5 12.79	2.2813	9 39 41.4	11.029	1	2 58 1.38	2.4201	17 3 8.8	7.025
2	1 7 29.74	2.2838	9 50 41.5	10.973	2	3 0 26.67	2.4228	17 10 7.1	6.917
3	1 9 46.85	2.2866	10 1 38.2	10.916	3	3 2 52.12	2.4255	17 16 58.8	6.807
4	1 12 4.13	2.2893	10 12 31.4	10.857	4	3 5 17.73	2.4281	17 23 43.9	6.696
5	1 14 21.56	2.2919	10 23 21.0	10.796	5	3 7 43.49	2.4307	17 30 22.3	6.584
6	1 16 39.16	2.2947	10 34 6.9	10.734	6	3 10 9.41	2.4333	17 36 54.0	6.472
7	1 18 56.92	2.2974	10 44 49.1	10.672	7	3 12 35.48	2.4358	17 43 18.9	6.358
8	1 21 14.85	2.3003	10 55 27.5	10.608	8	3 15 1.70	2.4382	17 49 37.0	6.245
9	1 23 32.95	2.3030	11 6 2.1	10.543	9	3 17 28.06	2.4406	17 55 48.3	6.131
10	1 25 51.21	2.3058	11 16 32.7	10.477	10	3 19 54.57	2.4431	18 1 52.7	6.015
11	1 28 9.65	2.3087	11 26 59.3	10.410	11	3 22 21.23	2.4455	18 7 50.1	5.898
12	1 30 28.25	2.3115	11 37 21.9	10.342	12	3 24 48.03	2.4478	18 13 40.4	5.780
13	1 32 47.03	2.3144	11 47 40.3	10.272	13	3 27 14.96	2.4500	18 19 23.7	5.663
14	1 35 5.98	2.3173	11 57 54.5	10.201	14	3 29 42.03	2.4523	18 25 0.0	5.545
15	1 37 25.10	2.3202	12 8 4.4	10.128	15	3 32 9.23	2.4544	18 30 29.1	5.426
16	1 39 44.40	2.3231	12 18 9.9	10.055	16	3 34 36.56	2.4566	18 35 51.1	5.307
17	1 42 3.87	2.3260	12 28 11.0	9.981	17	3 37 4.02	2.4587	18 41 5.9	5.186
18	1 44 23.52	2.3290	12 38 7.6	9.905	18	3 39 31.60	2.4607	18 46 13.4	5.064
19	1 46 43.35	2.3320	12 47 59.6	9.828	19	3 41 59.30	2.4626	18 51 13.6	4.942
20	1 49 3.36	2.3350	12 57 47.0	9.751	20	3 44 27.11	2.4645	18 56 6.4	4.819
21	1 51 23.55	2.3379	13 7 29.7	9.672	21	3 46 55.04	2.4664	19 0 51.9	4.697
22	1 53 43.91	2.3409	13 17 7.6	9.592	22	3 49 23.08	2.4682	19 5 30.0	4.573
23	1 56 4.46	2.3440	N. 13 26 40.7	9.511	23	3 51 51.22	2.4698	N. 19 10 0.6	4.448
TUESDAY 6.					THURSDAY 8.				
0	1 58 25.19	2.3469	N. 13 36 8.9	9.428	0	3 54 19.46	2.4715	N. 19 14 23.7	4.323
1	2 0 46.09	2.3499	13 45 32.1	9.345	1	3 56 47.80	2.4732	19 18 39.3	4.198
2	2 3 7.18	2.3529	13 54 50.3	9.261	2	3 59 16.24	2.4748	19 22 47.4	4.072
3	2 5 28.44	2.3559	14 4 3.4	9.175	3	4 1 44.77	2.4762	19 26 47.9	3.945
4	2 7 49.89	2.3590	14 13 11.3	9.088	4	4 4 13.38	2.4776	19 30 40.8	3.818
5	2 10 11.52	2.3620	14 22 13.9	8.999	5	4 6 42.08	2.4790	19 34 26.1	3.692
6	2 12 33.33	2.3650	14 31 11.2	8.911	6	4 9 10.86	2.4803	19 38 3.8	3.563
7	2 14 55.32	2.3680	14 40 3.2	8.821	7	4 11 39.71	2.4815	19 41 33.7	3.434
8	2 17 17.49	2.3710	14 48 49.7	8.730	8	4 14 8.64	2.4827	19 44 55.9	3.306
9	2 19 39.84	2.3740	14 57 30.8	8.638	9	4 16 37.63	2.4838	19 48 10.4	3.177
10	2 22 2.37	2.3770	15 6 6.3	8.544	10	4 19 6.69	2.4848	19 51 17.1	3.048
11	2 24 25.08	2.3800	15 14 36.1	8.449	11	4 21 35.80	2.4857	19 54 16.1	2.918
12	2 26 47.97	2.3830	15 23 0.2	8.354	12	4 24 4.97	2.4866	19 57 7.2	2.787
13	2 29 11.04	2.3859	15 31 18.6	8.258	13	4 26 34.19	2.4873	19 59 50.5	2.657
14	2 31 34.28	2.3888	15 39 31.2	8.161	14	4 29 3.45	2.4881	20 2 26.0	2.526
15	2 33 57.70	2.3918	15 47 37.9	8.062	15	4 31 32.76	2.4888	20 4 53.6	2.395
16	2 36 21.30	2.3948	15 55 38.6	7.963	16	4 34 2.10	2.4893	20 7 13.4	2.264
17	2 38 45.07	2.3976	16 3 33.4	7.863	17	4 36 31.48	2.4898	20 9 25.3	2.133
18	2 41 9.01	2.4005	16 11 22.1	7.761	18	4 39 0.88	2.4903	20 11 29.3	2.000
19	2 43 33.13	2.4033	16 19 4.7	7.659	19	4 41 30.31	2.4906	20 13 25.3	1.868
20	2 45 57.41	2.4062	16 26 41.2	7.556	20	4 43 59.75	2.4908	20 15 13.4	1.736
21	2 48 21.87	2.4091	16 34 11.4	7.451	21	4 46 29.21	2.4911	20 16 53.6	1.604
22	2 50 46.50	2.4119	16 41 35.3	7.346	22	4 48 58.68	2.4912	20 18 25.9	1.472
23	2 53 11.30	2.4147	16 48 52.9	7.240	23	4 51 28.15	2.4911	20 19 50.2	1.339
24	2 55 36.26	2.4173	N. 16 56 4.1	7.133	24	4 53 57.61	2.4910	N. 20 21 6.6	1.207

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 9.					SUNDAY 11.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	4 53 57.61	2.4910	N.20 21 6.6	1.207	0	6 51 58.22	2.3978	N.18 49 51.3	4.843
1	4 56 27.07	2.4910	20 22 15.0	1.074	1	6 54 21.99	2.3943	18 44 57.4	4.954
2	4 58 56.53	2.4908	20 23 15.5	0.942	2	6 56 45.54	2.3907	18 39 56.8	5.065
3	5 1 25.97	2.4905	20 24 8.0	0.808	3	6 59 8.87	2.3870	18 34 49.6	5.175
4	5 3 55.39	2.4901	20 24 52.5	0.676	4	7 1 31.98	2.3833	18 29 35.8	5.284
5	5 6 24.78	2.4896	20 25 29.1	0.543	5	7 3 54.87	2.3796	18 24 15.5	5.393
6	5 8 54.14	2.4891	20 25 57.7	0.411	6	7 6 17.53	2.3758	18 18 48.7	5.500
7	5 11 23.47	2.4885	20 26 18.4	0.278	7	7 8 39.97	2.3720	18 13 15.5	5.606
8	5 13 52.76	2.4878	20 26 31.1	0.146	8	7 11 2.17	2.3681	18 7 36.0	5.711
9	5 16 22.00	2.4870	20 26 35.9	+0.014	9	7 13 24.14	2.3642	18 1 50.2	5.816
10	5 18 51.20	2.4862	20 26 32.8	-0.118	10	7 15 45.87	2.3602	17 55 58.1	5.919
11	5 21 20.34	2.4852	20 26 21.7	0.251	11	7 18 7.36	2.3563	17 49 59.9	6.021
12	5 23 49.42	2.4842	20 26 2.7	0.383	12	7 20 28.62	2.3523	17 43 55.6	6.123
13	5 26 18.44	2.4831	20 25 35.8	0.514	13	7 22 49.63	2.3482	17 37 45.2	6.224
14	5 28 47.39	2.4818	20 25 1.0	0.646	14	7 25 10.40	2.3441	17 31 28.7	6.324
15	5 31 16.26	2.4806	20 24 18.3	0.777	15	7 27 30.92	2.3399	17 25 6.3	6.423
16	5 33 45.06	2.4793	20 23 27.8	0.908	16	7 29 51.19	2.3358	17 18 38.0	6.520
17	5 36 13.77	2.4778	20 22 29.4	1.038	17	7 32 11.22	2.3317	17 12 3.9	6.617
18	5 38 42.40	2.4763	20 21 23.2	1.169	18	7 34 31.00	2.3275	17 5 24.0	6.713
19	5 41 10.93	2.4748	20 20 9.1	1.299	19	7 36 50.52	2.3233	16 58 38.4	6.807
20	5 43 39.37	2.4731	20 18 47.3	1.428	20	7 39 9.79	2.3190	16 51 47.2	6.900
21	5 46 7.70	2.4713	20 17 17.7	1.558	21	7 41 28.80	2.3148	16 44 50.4	6.993
22	5 48 35.93	2.4695	20 15 40.4	1.687	22	7 43 47.56	2.3105	16 37 48.1	7.084
23	5 51 4.04	2.4676	N.20 13 55.3	1.816	23	7 46 6.06	2.3062	N.16 30 40.3	7.175
SATURDAY 10.					MONDAY 12.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	5 53 32.04	2.4657	N.20 12 2.5	1.943	0	7 48 24.30	2.3018	N.16 23 27.1	7.264
1	5 55 59.92	2.4636	20 10 2.1	2.071	1	7 50 42.28	2.2975	16 16 8.6	7.353
2	5 58 27.67	2.4615	20 7 54.0	2.198	2	7 53 0.00	2.2932	16 8 44.8	7.440
3	6 0 55.30	2.4593	20 5 38.3	2.325	3	7 55 17.46	2.2888	16 1 15.8	7.526
4	6 3 22.79	2.4570	20 3 15.0	2.451	4	7 57 34.66	2.2844	15 53 41.7	7.611
5	6 5 50.14	2.4547	20 0 44.2	2.577	5	7 59 51.59	2.2800	15 46 2.5	7.695
6	6 8 17.35	2.4523	19 58 5.8	2.702	6	8 2 8.26	2.2757	15 38 18.3	7.778
7	6 10 44.42	2.4498	19 55 20.0	2.826	7	8 4 24.67	2.2713	15 30 29.1	7.860
8	6 13 11.33	2.4473	19 52 26.7	2.951	8	8 6 40.81	2.2668	15 22 35.1	7.940
9	6 15 38.09	2.4447	19 49 25.9	3.074	9	8 8 56.69	2.2624	15 14 36.3	8.020
10	6 18 4.69	2.4420	19 46 17.8	3.197	10	8 11 12.30	2.2579	15 6 32.7	8.099
11	6 20 31.13	2.4392	19 43 2.3	3.318	11	8 13 27.64	2.2535	14 58 24.4	8.176
12	6 22 57.39	2.4363	19 39 39.6	3.439	12	8 15 42.72	2.2491	14 50 11.6	8.252
13	6 25 23.49	2.4335	19 36 9.6	3.561	13	8 17 57.53	2.2447	14 41 54.2	8.328
14	6 27 49.41	2.4305	19 32 32.3	3.682	14	8 20 12.08	2.2403	14 33 32.3	8.402
15	6 30 15.15	2.4275	19 28 47.8	3.801	15	8 22 26.36	2.2358	14 25 6.0	8.474
16	6 32 40.71	2.4245	19 24 56.2	3.919	16	8 24 40.38	2.2314	14 16 35.4	8.546
17	6 35 6.09	2.4214	19 20 57.5	4.038	17	8 26 54.13	2.2270	14 8 0.5	8.617
18	6 37 31.28	2.4182	19 16 51.7	4.155	18	8 29 7.62	2.2226	13 59 21.4	8.687
19	6 39 56.27	2.4149	19 12 38.9	4.272	19	8 31 20.84	2.2181	13 50 38.1	8.755
20	6 42 21.07	2.4117	19 8 10.1	4.388	20	8 33 33.79	2.2137	13 41 50.8	8.823
21	6 44 45.67	2.4083	19 3 52.4	4.502	21	8 35 46.48	2.2093	13 32 59.4	8.889
22	6 47 10.06	2.4048	18 59 18.9	4.616	22	8 37 58.91	2.2050	13 24 4.1	8.954
23	6 49 34.25	2.4013	18 54 38.5	4.730	23	8 40 11.08	2.2007	13 15 4.9	9.018
24	6 51 58.22	2.3978	N.18 49 51.3	4.843	24	8 42 22.99	2.1963	N.13 6 1.9	9.081

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 13.					THURSDAY 15.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	8 42 22.99	2.1963	N. 13 6 1.9	9.081	0	10 23 12.79	2.0170	N. 4 58 8.9	10.850
1	8 44 34.63	2.1919	12 56 55.2	9.143	1	10 25 13.72	2.0142	4 47 17.5	10.863
2	8 46 46.02	2.1876	12 47 44.8	9.204	2	10 27 14.49	2.0113	4 36 25.4	10.874
3	8 48 57.14	2.1833	12 38 30.7	9.264	3	10 29 15.08	2.0085	4 25 32.6	10.885
4	8 51 8.01	2.1790	12 29 13.1	9.322	4	10 31 15.51	2.0058	4 14 39.2	10.894
5	8 53 18.62	2.1747	12 19 52.1	9.379	5	10 33 15.78	2.0032	4 3 45.3	10.903
6	8 55 28.97	2.1704	12 10 27.6	9.436	6	10 35 15.89	2.0005	3 52 50.8	10.912
7	8 57 39.07	2.1662	12 0 59.8	9.491	7	10 37 15.84	1.9978	3 41 55.9	10.919
8	8 59 48.91	2.1619	11 51 28.7	9.545	8	10 39 15.63	1.9953	3 31 0.5	10.926
9	9 1 58.50	2.1578	11 41 54.4	9.598	9	10 41 15.28	1.9928	3 20 4.8	10.931
10	9 4 7.84	2.1535	11 32 16.9	9.650	10	10 43 14.77	1.9903	3 9 8.8	10.935
11	9 6 16.92	2.1493	11 22 36.4	9.701	11	10 45 14.12	1.9878	2 58 12.6	10.938
12	9 8 25.76	2.1453	11 12 52.8	9.751	12	10 47 13.31	1.9854	2 47 16.2	10.941
13	9 10 34.35	2.1411	11 3 6.3	9.799	13	10 49 12.37	1.9832	2 36 19.7	10.943
14	9 12 42.69	2.1370	10 53 16.9	9.847	14	10 51 11.29	1.9808	2 25 23.0	10.945
15	9 14 50.79	2.1330	10 43 24.7	9.893	15	10 53 10.07	1.9786	2 14 26.3	10.945
16	9 16 58.65	2.1289	10 33 29.7	9.938	16	10 55 8.72	1.9764	2 3 29.6	10.944
17	9 19 6.26	2.1248	10 23 32.1	9.983	17	10 57 7.24	1.9743	1 52 33.0	10.943
18	9 21 13.63	2.1209	10 13 31.8	10.027	18	10 59 5.63	1.9721	1 41 36.4	10.942
19	9 23 20.77	2.1170	10 3 28.9	10.069	19	11 1 3.89	1.9701	1 30 40.0	10.938
20	9 25 27.67	2.1130	9 53 23.5	10.110	20	11 3 2.04	1.9681	1 19 43.8	10.934
21	9 27 34.33	2.1091	9 43 15.7	10.150	21	11 5 0.06	1.9660	1 8 47.9	10.930
22	9 29 40.76	2.1053	9 33 5.5	10.189	22	11 6 57.96	1.9641	0 57 52.2	10.925
23	9 31 46.96	2.1013	N. 9 22 53.0	10.227	23	11 8 55.75	1.9623	N. 0 46 56.9	10.919
WEDNESDAY 14.					FRIDAY 16.				
0	9 33 52.92	2.0975	N. 9 12 38.3	10.263	0	11 10 53.43	1.9604	N. 0 36 1.9	10.913
1	9 35 58.66	2.0938	9 2 21.4	10.299	1	11 12 51.00	1.9586	0 25 7.4	10.904
2	9 38 4.18	2.0901	8 52 2.4	10.334	2	11 14 48.46	1.9568	0 14 13.4	10.896
3	9 40 9.47	2.0863	8 41 41.3	10.368	3	11 16 45.82	1.9551	N. 0 3 19.9	10.887
4	9 42 14.54	2.0827	8 31 18.2	10.401	4	11 18 43.07	1.9533	S. 0 7 33.0	10.877
5	9 44 19.39	2.0790	8 20 53.2	10.433	5	11 20 40.22	1.9517	0 18 25.3	10.866
6	9 46 24.02	2.0754	8 10 26.3	10.463	6	11 22 37.28	1.9503	0 29 16.9	10.855
7	9 48 28.44	2.0718	7 59 57.6	10.493	7	11 24 34.25	1.9488	0 40 7.9	10.843
8	9 50 32.64	2.0683	7 49 27.1	10.522	8	11 26 31.13	1.9473	0 50 58.1	10.830
9	9 52 36.63	2.0648	7 38 55.0	10.549	9	11 28 27.92	1.9458	1 1 47.5	10.817
10	9 54 40.42	2.0614	7 28 21.2	10.577	10	11 30 24.62	1.9443	1 12 36.1	10.803
11	9 56 44.00	2.0580	7 17 45.8	10.603	11	11 32 21.24	1.9431	1 23 23.8	10.788
12	9 58 47.38	2.0546	7 7 8.9	10.628	12	11 34 17.79	1.9418	1 34 10.6	10.772
13	10 0 50.55	2.0512	6 56 30.5	10.651	13	11 36 14.26	1.9405	1 44 56.4	10.755
14	10 2 53.52	2.0479	6 45 50.8	10.673	14	11 38 10.65	1.9393	1 55 41.2	10.738
15	10 4 56.30	2.0447	6 35 9.7	10.696	15	11 40 6.97	1.9382	2 6 25.0	10.721
16	10 6 58.88	2.0413	6 24 27.3	10.717	16	11 42 3.23	1.9371	2 17 7.7	10.702
17	10 9 1.26	2.0382	6 13 43.7	10.737	17	11 43 59.42	1.9359	2 27 49.2	10.683
18	10 11 3.46	2.0351	6 2 58.9	10.756	18	11 45 55.54	1.9349	2 38 29.6	10.663
19	10 13 5.47	2.0320	5 52 13.0	10.773	19	11 47 51.61	1.9340	2 49 8.7	10.642
20	10 15 7.30	2.0289	5 41 26.1	10.790	20	11 49 47.62	1.9330	2 59 46.6	10.621
21	10 17 8.94	2.0258	5 30 38.2	10.807	21	11 51 43.57	1.9321	3 10 23.2	10.599
22	10 19 10.40	2.0228	5 19 49.3	10.823	22	11 53 39.47	1.9313	3 20 58.5	10.577
23	10 21 11.68	2.0199	5 8 59.5	10.837	23	11 55 35.32	1.9304	3 31 32.4	10.553
24	10 23 12.79	2.0170	N. 4 58 8.9	10.850	24	11 57 31.12	1.9297	S. 3 42 4.9	10.529

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 17.					MONDAY 19.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	11 57 31.12	1.9297	S. 3 42 4.9	10.529	0	13 30 4.56	1.9423	S. 11 28 13.7	8.673
1	11 59 26.88	1.9290	3 52 35.9	10.504	1	13 32 1.13	1.9435	11 36 52.5	8.620
2	12 1 22.60	1.9283	4 3 5.4	10.479	2	13 33 57.78	1.9447	11 45 28.1	8.568
3	12 3 18.28	1.9277	4 13 33.4	10.453	3	13 35 54.50	1.9459	11 54 0.6	8.515
4	12 5 13.92	1.9271	4 23 59.8	10.427	4	13 37 51.29	1.9473	12 2 29.9	8.461
5	12 7 9.53	1.9266	4 34 24.6	10.399	5	13 39 48.17	1.9486	12 10 55.9	8.406
6	12 9 5.11	1.9261	4 44 47.7	10.371	6	13 41 45.12	1.9499	12 19 18.6	8.351
7	12 11 0.66	1.9256	4 55 9.1	10.343	7	13 43 42.16	1.9513	12 27 38.0	8.296
8	12 12 56.18	1.9252	5 5 28.8	10.314	8	13 45 39.28	1.9528	12 35 54.1	8.241
9	12 14 51.68	1.9248	5 15 46.8	10.285	9	13 47 36.49	1.9542	12 44 6.9	8.185
10	12 16 47.16	1.9245	5 26 3.0	10.254	10	13 49 33.78	1.9556	12 52 16.3	8.128
11	12 18 42.62	1.9242	5 36 17.3	10.223	11	13 51 31.16	1.9571	13 0 22.2	8.070
12	12 20 38.06	1.9239	5 46 29.7	10.191	12	13 53 28.63	1.9587	13 8 24.7	8.013
13	12 22 33.49	1.9238	5 56 40.2	10.159	13	13 55 26.20	1.9603	13 16 23.7	7.954
14	12 24 28.91	1.9237	6 6 48.8	10.127	14	13 57 23.86	1.9618	13 24 19.2	7.895
15	12 26 24.33	1.9236	6 16 55.4	10.093	15	13 59 21.62	1.9635	13 32 11.1	7.835
16	12 28 19.74	1.9234	6 27 0.0	10.059	16	14 1 19.48	1.9652	13 39 59.4	7.776
17	12 30 15.14	1.9234	6 37 2.5	10.025	17	14 3 17.44	1.9668	13 47 44.2	7.716
18	12 32 10.55	1.9235	6 47 3.0	9.990	18	14 5 15.50	1.9686	13 55 25.3	7.654
19	12 34 5.96	1.9236	6 57 1.3	9.953	19	14 7 13.67	1.9703	14 3 2.7	7.593
20	12 36 1.38	1.9237	7 6 57.4	9.918	20	14 9 11.94	1.9720	14 10 36.4	7.531
21	12 37 56.80	1.9238	7 16 51.4	9.881	21	14 11 10.31	1.9738	14 18 6.4	7.468
22	12 39 52.23	1.9239	7 26 43.1	9.843	22	14 13 8.80	1.9757	14 25 32.6	7.406
23	12 41 47.67	1.9242	S. 7 36 32.6	9.805	23	14 15 7.39	1.9774	S. 14 32 55.1	7.343
SUNDAY 18.					TUESDAY 20.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	12 43 43.13	1.9245	S. 7 46 19.7	9.776	0	14 17 6.09	1.9793	S. 14 40 13.7	7.278
1	12 45 38.61	1.9248	7 56 4.5	9.728	1	14 19 4.91	1.9813	14 47 28.5	7.213
2	12 47 34.10	1.9251	8 5 47.0	9.688	2	14 21 3.84	1.9832	14 54 39.3	7.148
3	12 49 29.62	1.9255	8 15 27.0	9.647	3	14 23 2.89	1.9851	15 1 46.3	7.084
4	12 51 25.16	1.9258	8 25 4.6	9.607	4	14 25 2.05	1.9870	15 8 49.4	7.018
5	12 53 20.72	1.9263	8 34 39.8	9.565	5	14 27 1.33	1.9890	15 15 48.5	6.951
6	12 55 16.32	1.9269	8 44 12.4	9.523	6	14 29 0.73	1.9910	15 22 43.5	6.883
7	12 57 11.95	1.9274	8 53 42.5	9.480	7	14 31 0.25	1.9930	15 29 34.5	6.817
8	12 59 7.61	1.9279	9 3 10.0	9.437	8	14 32 59.89	1.9950	15 36 21.5	6.749
9	13 1 3.30	1.9286	9 12 34.9	9.393	9	14 34 59.65	1.9971	15 43 4.4	6.681
10	13 2 59.04	1.9292	9 21 57.2	9.349	10	14 36 59.54	1.9992	15 49 43.2	6.612
11	13 4 54.81	1.9298	9 31 16.8	9.304	11	14 38 59.55	2.0013	15 56 17.8	6.543
12	13 6 50.62	1.9306	9 40 33.7	9.258	12	14 40 59.69	2.0034	16 2 48.3	6.473
13	13 8 46.48	1.9314	9 49 47.8	9.213	13	14 42 59.96	2.0056	16 9 14.6	6.403
14	13 10 42.39	1.9323	9 58 59.2	9.167	14	14 45 0.36	2.0078	16 15 36.6	6.332
15	13 12 38.35	1.9331	10 8 7.8	9.120	15	14 47 0.89	2.0099	16 21 54.4	6.261
16	13 14 34.36	1.9339	10 17 13.6	9.073	16	14 49 1.55	2.0121	16 28 7.9	6.189
17	13 16 30.42	1.9348	10 26 16.5	9.024	17	14 51 2.34	2.0143	16 34 17.1	6.117
18	13 18 26.54	1.9358	10 35 16.5	8.975	18	14 53 3.26	2.0165	16 40 21.9	6.043
19	13 20 22.72	1.9368	10 44 13.5	8.926	19	14 55 4.32	2.0188	16 46 22.3	5.970
20	13 22 18.96	1.9378	10 53 7.6	8.877	20	14 57 5.51	2.0210	16 52 18.3	5.897
21	13 24 15.26	1.9389	11 1 58.7	8.827	21	14 59 6.84	2.0233	16 58 9.9	5.823
22	13 26 11.63	1.9400	11 10 46.8	8.776	22	15 1 8.30	2.0255	17 3 57.1	5.748
23	13 28 8.06	1.9411	11 19 31.8	8.724	23	15 3 9.90	2.0278	17 9 39.7	5.673
24	13 30 4.56	1.9423	S. 11 28 13.7	8.673	24	15 5 11.63	2.0301	S. 17 15 17.9	5.598

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 21.					FRIDAY 23.				
	<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>		<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>
0	15 5 11.63	2.0301	S. 17 15 17.9	5.598	0	16 45 22.42	2.1429	S. 20 8 21.3	1.449
1	15 7 13.51	2.0324	17 20 51.5	5.522	1	16 47 31.06	2.1451	20 9 45.4	1.353
2	15 9 15.52	2.0347	17 26 20.5	5.445	2	16 49 39.83	2.1472	20 11 3.7	1.257
3	15 11 17.67	2.0370	17 31 44.9	5.368	3	16 51 48.72	2.1493	20 12 16.2	1.160
4	15 13 19.96	2.0394	17 37 4.7	5.291	4	16 53 57.74	2.1514	20 13 22.9	1.063
5	15 15 22.40	2.0418	17 42 19.8	5.213	5	16 56 6.89	2.1535	20 14 23.7	0.965
6	15 17 24.98	2.0442	17 47 30.3	5.135	6	16 58 16.16	2.1555	20 15 18.7	0.868
7	15 19 27.70	2.0465	17 52 36.0	5.056	7	17 0 25.55	2.1576	20 16 7.8	0.769
8	15 21 30.56	2.0488	17 57 37.0	4.977	8	17 2 35.07	2.1596	20 16 51.0	0.671
9	15 23 33.56	2.0513	18 2 33.2	4.897	9	17 4 44.70	2.1616	20 17 28.3	0.572
10	15 25 36.71	2.0537	18 7 24.6	4.817	10	17 6 54.46	2.1636	20 17 59.6	0.473
11	15 27 40.00	2.0560	18 12 11.2	4.736	11	17 9 4.33	2.1654	20 18 25.0	0.373
12	15 29 43.43	2.0584	18 16 52.9	4.655	12	17 11 14.31	2.1673	20 18 44.4	0.274
13	15 31 47.01	2.0608	18 21 29.8	4.573	13	17 13 24.41	2.1693	20 18 57.9	0.174
14	15 33 50.73	2.0632	18 26 1.7	4.491	14	17 15 34.63	2.1713	20 19 5.3	-0.074
15	15 35 54.59	2.0656	18 30 28.7	4.409	15	17 17 44.96	2.1731	20 19 6.8	+0.026
16	15 37 58.60	2.0680	18 34 50.8	4.327	16	17 19 55.40	2.1749	20 19 2.2	0.127
17	15 40 2.75	2.0704	18 39 7.9	4.243	17	17 22 5.95	2.1767	20 18 51.6	0.228
18	15 42 7.05	2.0729	18 43 19.9	4.158	18	17 24 16.60	2.1784	20 18 34.9	0.329
19	15 44 11.50	2.0753	18 47 26.9	4.075	19	17 26 27.36	2.1803	20 18 12.1	0.431
20	15 46 16.09	2.0778	18 51 28.9	3.990	20	17 28 38.23	2.1820	20 17 43.2	0.532
21	15 48 20.83	2.0802	18 55 25.7	3.904	21	17 30 49.20	2.1837	20 17 8.3	0.633
22	15 50 25.71	2.0826	18 59 17.4	3.818	22	17 33 0.27	2.1853	20 16 27.2	0.736
23	15 52 30.74	2.0850	S. 19 3 3.9	3.733	23	17 35 11.44	2.1870	S. 20 15 40.0	0.838
THURSDAY 22.					SATURDAY 24.				
0	15 54 35.91	2.0873	S. 19 6 45.3	3.647	0	17 37 22.71	2.1887	S. 20 14 46.6	0.941
1	15 56 41.22	2.0898	19 10 21.5	3.560	1	17 39 34.08	2.1903	20 13 47.1	1.043
2	15 58 46.68	2.0923	19 13 52.5	3.473	2	17 41 45.54	2.1918	20 12 41.4	1.146
3	16 0 52.29	2.0946	19 17 18.2	3.384	3	17 43 57.09	2.1933	20 11 29.6	1.248
4	16 2 58.03	2.0969	19 20 38.6	3.297	4	17 46 8.74	2.1949	20 10 11.6	1.352
5	16 5 3.92	2.0994	19 23 53.8	3.208	5	17 48 20.48	2.1964	20 8 47.4	1.455
6	16 7 9.96	2.1018	19 27 3.6	3.118	6	17 50 32.31	2.1979	20 7 17.0	1.558
7	16 9 16.13	2.1041	19 30 8.0	3.029	7	17 52 44.23	2.1993	20 5 40.4	1.662
8	16 11 22.45	2.1066	19 33 7.1	2.939	8	17 54 56.23	2.2007	20 3 57.6	1.765
9	16 13 28.92	2.1089	19 36 0.7	2.848	9	17 57 8.31	2.2020	20 2 8.6	1.869
10	16 15 35.52	2.1112	19 38 48.9	2.758	10	17 59 20.47	2.2034	20 0 13.3	1.973
11	16 17 42.26	2.1136	19 41 31.7	2.668	11	18 1 32.72	2.2048	19 58 11.8	2.077
12	16 19 49.15	2.1159	19 44 9.0	2.576	12	18 3 45.04	2.2060	19 56 4.1	2.181
13	16 21 56.17	2.1182	19 46 40.8	2.484	13	18 5 57.44	2.2073	19 53 50.1	2.286
14	16 24 3.33	2.1205	19 49 7.1	2.392	14	18 8 9.91	2.2085	19 51 29.8	2.390
15	16 26 10.63	2.1228	19 51 27.9	2.299	15	18 10 22.46	2.2098	19 49 3.3	2.494
16	16 28 18.07	2.1251	19 53 43.0	2.206	16	18 12 35.08	2.2108	19 46 30.5	2.598
17	16 30 25.64	2.1273	19 55 52.6	2.113	17	18 14 47.76	2.2120	19 43 51.5	2.703
18	16 32 33.35	2.1296	19 57 56.6	2.020	18	18 17 0.52	2.2132	19 41 6.2	2.808
19	16 34 41.19	2.1318	19 59 55.0	1.926	19	18 19 13.34	2.2142	19 38 14.6	2.912
20	16 36 49.17	2.1341	20 1 47.7	1.831	20	18 21 26.22	2.2153	19 35 16.8	3.016
21	16 38 57.28	2.1363	20 3 34.7	1.736	21	18 23 39.17	2.2163	19 32 12.7	3.121
22	16 41 5.53	2.1386	20 5 16.0	1.640	22	18 25 52.17	2.2173	19 29 2.3	3.226
23	16 43 13.91	2.1408	20 6 51.5	1.544	23	18 28 5.24	2.2183	19 25 45.6	3.330
24	16 45 22.42	2.1429	S. 20 8 21.3	1.449	24	18 30 18.36	2.2192	S. 19 22 22.7	3.434

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 25.					TUESDAY 27.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	18 30 18.36	2.2192	S. 19 22 22.7	3.434	0	20 17 24.25	2.2349	S. 14 40 18.2	8.201
1	18 32 31.54	2.2201	19 18 53.5	3.538	1	20 19 38.34	2.2348	14 32 3.5	8.290
2	18 34 44.77	2.2209	19 15 18.1	3.643	2	20 21 52.43	2.2348	14 23 43.4	8.379
3	18 36 58.05	2.2218	19 11 36.4	3.748	3	20 24 6.51	2.2347	14 15 18.0	8.468
4	18 39 11.38	2.2226	19 7 48.4	3.852	4	20 26 20.59	2.2345	14 6 47.3	8.555
5	18 41 24.76	2.2234	19 3 54.2	3.955	5	20 28 34.65	2.2343	13 58 11.4	8.642
6	18 43 38.19	2.2242	18 59 53.8	4.059	6	20 30 48.71	2.2343	13 49 30.3	8.728
7	18 45 51.66	2.2249	18 55 47.1	4.163	7	20 33 2.76	2.2341	13 40 44.7	8.813
8	18 48 5.18	2.2257	18 51 34.2	4.268	8	20 35 16.80	2.2340	13 31 52.8	8.898
9	18 50 18.74	2.2263	18 47 15.0	4.372	9	20 37 30.84	2.2338	13 22 56.4	8.983
10	18 52 32.34	2.2269	18 42 49.6	4.475	10	20 39 44.86	2.2337	13 13 54.9	9.066
11	18 54 45.97	2.2275	18 38 18.0	4.578	11	20 41 58.88	2.2336	13 4 48.5	9.148
12	18 56 59.64	2.2282	18 33 40.2	4.682	12	20 44 12.89	2.2334	12 55 37.2	9.229
13	18 59 13.35	2.2288	18 28 56.2	4.785	13	20 46 26.89	2.2333	12 46 21.0	9.311
14	19 1 27.09	2.2293	18 24 6.0	4.888	14	20 48 40.88	2.2331	12 36 59.9	9.392
15	19 3 40.86	2.2298	18 19 9.6	4.991	15	20 50 54.86	2.2329	12 27 34.0	9.471
16	19 5 54.67	2.2303	18 14 7.1	5.093	16	20 53 8.83	2.2328	12 18 3.4	9.550
17	19 8 8.50	2.2308	18 8 58.4	5.196	17	20 55 22.80	2.2327	12 8 28.0	9.628
18	19 10 22.36	2.2312	18 3 43.6	5.298	18	20 57 36.75	2.2325	11 58 48.0	9.705
19	19 12 36.24	2.2316	17 58 22.6	5.400	19	20 59 50.70	2.2324	11 49 3.4	9.782
20	19 14 50.15	2.2320	17 52 55.6	5.502	20	21 2 4.64	2.2323	11 39 14.2	9.858
21	19 17 4.08	2.2324	17 47 22.4	5.603	21	21 4 18.57	2.2321	11 29 20.5	9.932
22	19 19 18.04	2.2328	17 41 43.2	5.704	22	21 6 32.49	2.2320	11 19 22.4	10.005
23	19 21 32.01	2.2330	S. 17 35 57.9	5.806	23	21 8 46.41	2.2319	S. 11 9 19.9	10.078
MONDAY 26.					WEDNESDAY 28.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	19 23 46.00	2.2333	S. 17 30 6.5	5.907	0	21 11 0.32	2.2318	S. 10 59 13.0	10.151
1	19 26 0.01	2.2336	17 24 9.1	6.008	1	21 13 14.22	2.2317	10 49 1.8	10.223
2	19 28 14.03	2.2338	17 18 5.7	6.107	2	21 15 28.12	2.2316	10 38 46.3	10.293
3	19 30 28.07	2.2341	17 11 56.3	6.206	3	21 17 42.01	2.2315	10 28 26.7	10.362
4	19 32 42.12	2.2343	17 5 41.0	6.305	4	21 19 55.90	2.2314	10 18 2.9	10.430
5	19 34 56.18	2.2345	16 59 19.7	6.404	5	21 22 9.78	2.2313	10 7 35.1	10.498
6	19 37 10.26	2.2347	16 52 52.5	6.503	6	21 24 23.66	2.2313	9 57 3.2	10.565
7	19 39 24.34	2.2348	16 46 19.4	6.601	7	21 26 37.54	2.2313	9 46 27.3	10.631
8	19 41 38.43	2.2349	16 39 40.4	6.699	8	21 28 51.42	2.2313	9 35 47.5	10.695
9	19 43 52.53	2.2350	16 32 55.5	6.797	9	21 31 5.29	2.2313	9 25 3.9	10.759
10	19 46 6.63	2.2351	16 26 4.8	6.893	10	21 33 19.17	2.2313	9 14 16.4	10.822
11	19 48 20.74	2.2353	16 19 8.3	6.990	11	21 35 33.04	2.2312	9 3 25.2	10.883
12	19 50 34.86	2.2353	16 12 6.0	7.086	12	21 37 46.91	2.2313	8 52 30.4	10.944
13	19 52 48.98	2.2353	16 4 58.0	7.182	13	21 40 0.79	2.2313	8 41 31.9	11.004
14	19 55 3.10	2.2353	15 57 44.2	7.277	14	21 42 14.67	2.2314	8 30 29.9	11.063
15	19 57 17.22	2.2354	15 50 24.8	7.371	15	21 44 28.56	2.2315	8 19 24.4	11.121
16	19 59 31.35	2.2354	15 42 59.7	7.466	16	21 46 42.45	2.2315	8 8 15.4	11.178
17	20 1 45.47	2.2353	15 35 28.9	7.560	17	21 48 56.34	2.2316	7 57 3.1	11.233
18	20 3 59.59	2.2353	15 27 52.5	7.653	18	21 51 10.24	2.2318	7 45 47.4	11.288
19	20 6 13.71	2.2353	15 20 10.5	7.746	19	21 53 24.16	2.2320	7 34 28.5	11.341
20	20 8 27.83	2.2353	15 12 23.0	7.838	20	21 55 38.08	2.2321	7 23 6.5	11.393
21	20 10 41.94	2.2352	15 4 30.0	7.929	21	21 57 52.01	2.2323	7 11 41.3	11.445
22	20 12 56.05	2.2351	14 56 31.5	8.020	22	22 0 5.95	2.2324	7 0 13.1	11.495
23	20 15 10.15	2.2350	14 48 27.6	8.111	23	22 2 19.90	2.2327	6 48 41.9	11.544
24	20 17 24.25	2.2349	S. 14 40 18.2	8.201	24	22 4 33.87	2.2329	S. 6 37 7.8	11.592

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 29.					SATURDAY 31.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	22 4 33.87	2.2329	S. 6 37 7.8	11.592	0	23 52 31.97	2.2770	N. 3 11 5.9	12.414
1	22 6 47.85	2.2332	6 25 30.9	11.638	1	23 54 48.64	2.2788	3 23 30.3	12.398
2	22 9 1.85	2.2335	6 13 51.2	11.684	2	23 57 5.42	2.2805	3 35 53.7	12.381
3	22 11 15.87	2.2338	6 2 8.8	11.728	3	23 59 22.30	2.2822	3 48 16.0	12.363
4	22 13 29.91	2.2342	5 50 23.8	11.772	4	0 1 39.28	2.2839	4 0 37.2	12.343
5	22 15 43.97	2.2345	5 38 36.2	11.814	5	0 3 56.37	2.2857	4 12 57.1	12.321
6	22 17 58.05	2.2349	5 26 46.1	11.855	6	0 6 13.56	2.2874	4 25 15.7	12.298
7	22 20 12.16	2.2353	5 14 53.6	11.894	7	0 8 30.86	2.2893	4 37 32.8	12.273
8	22 22 26.29	2.2358	5 2 58.8	11.933	8	0 10 48.28	2.2913	4 49 48.4	12.247
9	22 24 40.45	2.2363	4 51 1.7	11.970	9	0 13 5.81	2.2931	5 2 2.5	12.221
10	22 26 54.64	2.2368	4 39 2.4	12.007	10	0 15 23.45	2.2950	5 14 14.9	12.192
11	22 29 8.86	2.2373	4 27 0.9	12.043	11	0 17 41.21	2.2969	5 26 25.5	12.161
12	22 31 23.11	2.2378	4 14 57.3	12.076	12	0 19 59.08	2.2989	5 38 34.2	12.129
13	22 33 37.39	2.2383	4 2 51.8	12.108	13	0 22 17.08	2.3009	5 50 41.0	12.097
14	22 35 51.71	2.2389	3 50 44.4	12.139	14	0 24 35.19	2.3029	6 2 45.8	12.063
15	22 38 6.06	2.2395	3 38 35.1	12.169	15	0 26 53.43	2.3050	6 14 48.5	12.027
16	22 40 20.45	2.2402	3 26 24.1	12.198	16	0 29 11.79	2.3071	6 26 49.0	11.990
17	22 42 34.88	2.2409	3 14 11.4	12.225	17	0 31 30.28	2.3093	6 38 47.3	11.952
18	22 44 49.36	2.2417	3 1 57.1	12.251	18	0 33 48.90	2.3113	6 50 43.2	11.912
19	22 47 3.88	2.2423	2 49 41.3	12.276	19	0 36 7.64	2.3135	7 2 36.7	11.871
20	22 49 18.44	2.2431	2 37 24.0	12.299	20	0 38 26.52	2.3157	7 14 27.7	11.828
21	22 51 33.05	2.2439	2 25 5.4	12.322	21	0 40 45.52	2.3178	7 26 16.0	11.783
22	22 53 47.71	2.2448	2 12 45.4	12.343	22	0 43 4.66	2.3201	7 38 1.7	11.738
23	22 56 2.42	2.2456	S. 2 0 24.3	12.362	23	0 45 23.93	2.3223	N. 7 49 44.6	11.691
FRIDAY 30.					SUNDAY, SEPTEMBER 1.				
0	22 58 17.18	2.2465	S. 1 48 2.0	12.381	0	0 47 43.34	2.3246	N. 8 1 24.6	11.643
1	23 0 32.00	2.2474	1 35 38.6	12.398					
2	23 2 46.87	2.2483	1 23 14.3	12.413					
3	23 5 1.80	2.2493	1 10 49.0	12.428					
4	23 7 16.79	2.2503	0 58 22.9	12.441					
5	23 9 31.84	2.2513	0 45 56.1	12.453					
6	23 11 46.95	2.2524	0 33 28.6	12.463					
7	23 14 2.13	2.2536	0 21 0.6	12.472					
8	23 16 17.38	2.2547	S. 0 8 32.0	12.480					
9	23 18 32.69	2.2558	N. 0 3 57.0	12.486					
10	23 20 48.08	2.2571	0 16 26.3	12.491					
11	23 23 3.54	2.2583	0 28 55.9	12.494					
12	23 25 19.07	2.2595	0 41 25.6	12.497					
13	23 27 34.68	2.2608	0 53 55.5	12.498					
14	23 29 50.37	2.2622	1 6 25.3	12.497					
15	23 32 6.14	2.2635	1 18 55.1	12.495					
16	23 34 21.99	2.2648	1 31 24.7	12.492					
17	23 36 37.92	2.2663	1 43 54.1	12.487					
18	23 38 53.94	2.2678	1 56 23.1	12.480					
19	23 41 10.05	2.2693	2 8 51.7	12.473					
20	23 43 26.25	2.2708	2 21 19.9	12.465					
21	23 45 42.54	2.2723	2 33 47.5	12.454					
22	23 47 58.92	2.2738	2 46 14.4	12.443					
23	23 50 15.40	2.2754	2 58 40.6	12.429					
24	23 52 31.97	2.2770	N. 3 11 5.9	12.414					
					PHASES OF THE MOON.				

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.			P. L. of Diff.			IIIh.			P. L. of Diff.			VIh.			P. L. of Diff.			IXh.			P. L. of Diff.		
			°	'	"				°	'	"				°	'	"				°	'	"			
1	Antares	W.	74	4	41	2454			75	47	0	2445			77	29	31	2436			79	12	15	2427		
	JUPITER	W.	47	35	56	2415			49	19	10	2405			51	2	37	2396			52	46	18	2387		
	SATURN	W.	40	53	43	2426			42	36	40	2416			44	19	52	2407			46	3	18	2398		
	α Arietis	E.	73	45	7	2483			72	3	30	2475			70	21	42	2468			68	39	43	2461		
	Aldebaran	E.	106	49	48	2437			105	7	6	2427			103	24	10	2418			101	41	1	2410		
2	Antares	W.	87	48	50	2389			89	32	41	2383			91	16	40	2376			93	0	49	2370		
	JUPITER	W.	61	27	40	2348			63	12	29	2342			64	57	27	2335			66	42	35	2329		
	SATURN	W.	54	43	33	2357			56	28	9	2350			58	12	56	2343			59	57	53	2337		
	α Arietis	E.	60	7	39	2434			58	24	53	2430			56	42	1	2427			54	59	4	2424		
	Aldebaran	E.	93	2	32	2373			91	18	18	2366			89	33	55	2360			87	49	23	2354		
3	Antares	W.	101	43	32	2346			103	28	25	2342			105	13	23	2339			106	58	26	2336		
	JUPITER	W.	75	30	22	2303			77	16	17	2299			79	2	18	2295			80	48	25	2291		
	SATURN	W.	68	44	44	2311			70	30	28	2306			72	16	19	2302			74	2	16	2298		
	α Arietis	E.	46	23	44	2422			44	40	41	2421			42	57	41	2428			41	14	46	2433		
	Aldebaran	E.	79	4	40	2328			77	19	22	2324			75	33	58	2321			73	48	29	2317		
	Pollux	E.	121	5	12	2431			119	22	21	2423			117	39	19	2416			115	56	6	2409		
4	JUPITER	W.	89	40	14	2277			91	26	48	2275			93	13	25	2273			95	0	5	2271		
	SATURN	W.	82	53	18	2283			84	39	43	2281			86	26	10	2279			88	12	41	2277		
	Aldebaran	E.	64	59	54	2304			63	14	0	2301			61	28	2	2300			59	42	2	2299		
	Pollux	E.	107	17	50	2382			105	33	50	2379			103	49	45	2376			102	5	35	2373		
	SUN	E.	127	19	33	2623			125	41	9	2619			124	2	40	2616			122	24	7	2614		
5	JUPITER	W.	103	53	52	2266			105	40	41	2266			107	27	30	2266			109	14	20	2266		
	SATURN	W.	97	5	49	2272			98	52	30	2271			100	39	12	2271			102	25	54	2270		
	Aldebaran	E.	50	51	44	2296			49	5	39	2296			47	19	34	2297			45	33	30	2298		
	Pollux	E.	93	23	52	2364			91	39	25	2363			89	54	57	2362			88	10	28	2362		
	SUN	E.	114	10	36	2604			112	31	47	2603			110	52	57	2602			109	14	5	2602		
6	Fomalhaut	W.	62	36	34	2879			64	9	20	2862			65	42	28	2847			67	15	56	2833		
	α Pegasi	W.	43	13	22	2613			44	51	59	2594			46	31	3	2577			48	10	30	2562		
	Pollux	E.	79	28	14	2367			77	43	52	2369			75	59	33	2371			74	15	17	2374		
	SUN	E.	100	59	42	2603			99	20	51	2603			97	42	0	2603			96	3	11	2605		
7	α Pegasi	W.	56	32	4	2512			58	13	0	2505			59	54	6	2499			61	35	21	2494		
	Pollux	E.	65	35	6	2393			63	51	21	2398			62	7	43	2403			60	24	13	2409		
	SUN	E.	87	49	30	2613			86	10	53	2615			84	32	19	2617			82	53	47	2620		
8	α Pegasi	W.	70	2	48	2483			71	44	25	2482			73	26	3	2482			75	7	42	2482		
	α Arietis	W.	26	30	10	2566			28	9	52	2544			29	50	5	2524			31	30	45	2507		
	Pollux	E.	51	49	8	2449			50	6	43	2459			48	24	32	2470			46	42	37	2482		
	SUN	E.	74	42	3	2635			73	3	55	2638			71	25	51	2641			69	47	52	2645		
9	α Pegasi	W.	83	35	31	2492			85	16	56	2495			86	58	16	2499			88	39	31	2503		
	α Arietis	W.	39	58	46	2460			41	40	55	2456			43	23	10	2453			45	5	29	2450		
	SUN	E.	61	39	21	2667			60	1	57	2672			58	24	40	2678			56	47	30	2684		
10	α Pegasi	W.	97	4	5	2531			98	44	35	2538			100	24	56	2545			102	5	7	2553		
	α Arietis	W.	53	37	28	2453			55	19	48	2455			57	2	5	2457			58	44	19	2460		
	SUN	E.	48	43	40	2716			47	7	21	2723			45	31	11	2731			43	55	12	2739		

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	Antares	W.	80 55 12	2419	82 38 20	2411	84 21 39	2403	86 5 9	2396
	JUPITER	W.	54 30 11	2379	56 14 16	2371	57 58 33	2363	59 43 1	2355
	SATURN	W.	47 46 57	2389	49 30 48	2380	51 14 51	2372	52 59 7	2364
	α Arietis	E.	66 57 35	2454	65 15 18	2448	63 32 52	2443	61 50 19	2438
	Aldebaran	E.	99 57 41	2403	98 14 10	2395	96 30 28	2387	94 46 35	2380
2	Antares	W.	94 45 7	2365	96 29 33	2360	98 14 5	2355	99 58 45	2350
	JUPITER	W.	68 27 53	2323	70 13 18	2317	71 58 52	2312	73 44 34	2308
	SATURN	W.	61 42 59	2331	63 28 14	2326	65 13 36	2321	66 59 6	2316
	α Arietis	E.	53 16 4	2422	51 33 1	2420	49 49 55	2420	48 6 49	2421
	Aldebaran	E.	86 4 42	2349	84 19 53	2344	82 34 56	2338	80 49 52	2333
3	Antares	W.	108 43 34	2333	110 28 46	2330	112 14 2	2328	113 59 21	2326
	JUPITER	W.	82 34 38	2288	84 20 55	2285	86 7 17	2282	87 53 43	2279
	SATURN	W.	75 48 19	2294	77 34 27	2291	79 20 39	2288	81 6 56	2285
	α Arietis	E.	39 31 59	2440	37 49 21	2448	36 6 54	2458	34 24 41	2469
	Aldebaran	E.	72 2 55	2314	70 17 16	2311	68 31 33	2308	66 45 45	2306
	Pollux	E.	114 12 43	2403	112 29 12	2397	110 45 32	2392	109 1 44	2387
4	JUPITER	W.	96 46 47	2270	98 33 31	2269	100 20 17	2268	102 7 4	2267
	SATURN	W.	89 59 15	2275	91 45 51	2274	93 32 29	2273	95 19 8	2272
	Aldebaran	E.	57 56 1	2298	56 9 58	2297	54 23 54	2296	52 37 49	2296
	Pollux	E.	100 21 20	2370	98 37 2	2368	96 52 41	2366	95 8 18	2365
	SUN	E.	120 45 31	2612	119 6 51	2610	117 28 9	2607	115 49 24	2605
5	JUPITER	W.	111 1 9	2266	112 47 58	2267	114 34 46	2268	116 21 33	2268
	SATURN	W.	104 12 37	2270	105 59 20	2271	107 46 1	2272	109 32 42	2272
	Aldebaran	E.	43 47 28	2299	42 1 27	2301	40 15 29	2303	38 29 34	2304
	Pollux	E.	86 25 59	2363	84 41 31	2364	82 57 4	2365	81 12 38	2366
	SUN	E.	107 35 13	2601	105 56 20	2601	104 17 27	2601	102 38 34	2602
6	Fomalhaut	W.	68 49 41	2821	70 23 41	2811	71 57 55	2802	73 32 21	2794
	α Pegasi	W.	49 50 17	2549	51 30 22	2538	53 10 43	2529	54 51 18	2520
	Pollux	E.	72 31 5	2377	70 46 57	2380	69 2 55	2384	67 18 58	2388
	SUN	E.	94 24 23	2607	92 45 37	2608	91 6 52	2610	89 28 10	2611
7	α Pegasi	W.	63 16 42	2491	64 58 8	2488	66 39 38	2486	68 21 12	2484
	Pollux	E.	58 40 52	2416	56 57 40	2423	55 14 37	2431	53 31 46	2440
	SUN	E.	81 15 19	2622	79 36 54	2625	77 58 33	2628	76 20 16	2631
8	α Pegasi	W.	76 49 20	2484	78 30 56	2485	80 12 30	2487	81 54 2	2489
	α Arietis	W.	33 11 49	2493	34 53 13	2481	36 34 53	2472	38 16 45	2465
	Pollux	E.	45 0 59	2496	43 19 41	2512	41 38 44	2529	39 58 10	2547
	SUN	E.	68 9 59	2649	66 32 11	2653	64 54 28	2658	63 16 52	2662
9	α Pegasi	W.	90 20 40	2508	92 1 43	2513	93 42 38	2519	95 23 26	2525
	α Arietis	W.	46 47 52	2450	48 30 16	2450	50 12 40	2450	51 55 5	2451
	SUN	E.	55 10 28	2689	53 33 33	2695	51 56 47	2701	50 20 9	2708
10	α Pegasi	W.	103 45 7	2561	105 24 55	2570	107 4 31	2580	108 43 54	2589
	α Arietis	W.	60 26 29	2464	62 8 33	2468	63 50 32	2472	65 32 24	2477
	SUN	E.	42 19 24	2747	40 43 47	2756	39 8 22	2766	37 33 10	2777

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
11	α Arietis W.	67 14 10	2482	68 55 48	2487	70 37 19	2493	72 18 42	2500
	SUN E.	35 58 11	2788	34 23 27	2800	32 48 59	2812	31 14 47	2826
16	SUN W.	25 55 1	3255	27 20 5	3260	28 45 3	3265	30 9 55	3271
	Antares E.	79 38 1	2850	78 4 38	2862	76 31 31	2874	74 58 39	2885
	JUPITER E.	105 1 38	2817	103 27 32	2828	101 53 42	2839	100 20 5	2850
	SATURN E.	111 56 30	2817	110 22 24	2828	108 48 33	2840	107 14 57	2851
17	SUN W.	37 12 18	3309	38 36 18	3318	40 0 9	3326	41 23 50	3334
	Antares E.	67 17 52	2941	65 46 25	2952	64 15 12	2962	62 44 12	2973
	JUPITER E.	92 35 29	2903	91 3 14	2913	89 31 13	2923	87 59 23	2933
	SATURN E.	99 30 22	2903	97 58 7	2913	96 26 5	2923	94 54 15	2932
18	SUN W.	48 19 58	3374	49 42 44	3381	51 5 22	3388	52 27 52	3395
	Antares E.	55 12 25	3023	53 42 41	3032	52 13 8	3042	50 43 47	3051
	JUPITER E.	80 23 15	2977	78 52 34	2985	77 22 4	2993	75 51 43	3001
	SATURN E.	87 17 58	2976	85 47 16	2984	84 16 43	2992	82 46 20	2999
	α Aquilæ E.	106 27 21	3427	105 5 35	3429	103 43 51	3431	102 22 10	3433
19	SUN W.	59 18 29	3426	60 40 16	3431	62 1 58	3435	63 23 35	3439
	VENUS W.	30 4 34	3572	31 23 39	3573	32 42 43	3573	34 1 47	3574
	Antares E.	43 19 51	3096	41 51 35	3105	40 23 31	3113	38 55 37	3122
	JUPITER E.	68 22 13	3034	66 52 42	3039	65 23 19	3044	63 54 1	3049
	SATURN E.	75 16 35	3031	73 47 1	3036	72 17 33	3041	70 48 11	3046
	α Aquilæ E.	95 34 25	3448	94 13 2	3452	92 51 44	3455	91 30 30	3459
20	SUN W.	70 10 40	3453	71 31 56	3454	72 53 11	3455	74 14 24	3456
	VENUS W.	40 37 0	3575	41 56 2	3575	43 15 4	3574	44 34 7	3573
	Spica W.	14 29 23	3065	15 58 15	3067	17 27 5	3068	18 55 54	3069
	MARS W.	14 12 6	3342	15 35 29	3339	16 58 55	3336	18 22 25	3333
	JUPITER E.	56 28 49	3067	54 59 59	3069	53 31 12	3071	52 2 27	3072
	SATURN E.	63 22 37	3062	61 53 41	3064	60 24 48	3066	58 55 57	3067
	α Aquilæ E.	84 45 20	3478	83 24 31	3482	82 3 47	3486	80 43 8	3490
21	SUN W.	81 0 32	3452	82 21 50	3449	83 43 10	3446	85 4 34	3443
	VENUS W.	51 9 50	3561	52 29 6	3557	53 48 27	3553	55 7 52	3549
	Spica W.	26 19 55	3065	27 48 47	3063	29 17 41	3060	30 46 38	3057
	MARS W.	25 20 48	3318	26 44 39	3315	28 8 33	3311	29 32 32	3306
	JUPITER E.	44 39 0	3074	43 10 19	3073	41 41 37	3072	40 12 53	3070
	SATURN E.	51 31 52	3067	50 3 2	3065	48 34 10	3063	47 5 16	3061
	α Aquilæ E.	74 1 5	3514	72 40 56	3519	71 20 53	3525	70 0 56	3530
22	SUN W.	91 52 40	3419	93 14 35	3412	94 36 38	3406	95 58 48	3398
	VENUS W.	61 46 21	3520	63 6 23	3513	64 26 33	3505	65 46 52	3497
	Spica W.	38 12 34	3035	39 42 3	3029	41 11 39	3022	42 41 24	3016
	MARS W.	36 33 47	3281	37 58 21	3274	39 23 4	3267	40 47 54	3259
	JUPITER E.	32 48 38	3059	31 19 38	3056	29 50 35	3053	28 21 28	3051
	SATURN E.	39 39 55	3045	38 10 38	3040	36 41 15	3036	35 11 47	3031
	α Aquilæ E.	63 22 55	3566	62 3 44	3575	60 44 42	3585	59 25 51	3596
	α Pegasi E.	109 52 13	3210	108 26 16	3201	107 0 9	3192	105 33 50	3183
23	SUN W.	102 51 57	3354	104 15 6	3343	105 38 27	3332	107 2 1	3322

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.			P. L. of Diff.	XVh.			P. L. of Diff.	XVIIIh.			P. L. of Diff.	XXIh.			P. L. of Diff.
			°	'	"		°	'	"		°	'	"		°	'	"	
11	<i>α</i> Arietis	W.	73	59	55	2507	75	40	58	2514	77	21	52	2520	79	2	37	2527
	SUN	E.	29	40	52	2841	28	7	17	2857	26	34	3	2875	25	1	12	2894
16	SUN	W.	31	34	40	3278	32	59	17	3285	34	23	46	3292	35	48	7	3301
	Antares	E.	73	26	1	2896	71	53	37	2908	70	21	28	2919	68	49	33	2930
	JUPITER	E.	98	46	42	2861	97	13	34	2872	95	40	39	2882	94	7	57	2893
	SATURN	E.	105	41	35	2862	104	8	27	2872	102	35	32	2882	101	2	50	2893
17	SUN	W.	42	47	22	3342	44	10	45	3350	45	33	58	3358	46	57	3	3366
	Antares	E.	61	13	25	2983	59	42	51	2993	58	12	30	3003	56	42	21	3013
	JUPITER	E.	86	27	46	2942	84	56	21	2952	83	25	8	2961	81	54	6	2969
	SATURN	E.	93	22	36	2942	91	51	10	2950	90	19	55	2959	88	48	51	2968
18	SUN	W.	53	50	14	3402	55	12	28	3408	56	34	35	3414	57	56	35	3420
	Antares	E.	49	14	38	3060	47	45	40	3069	46	16	53	3078	44	48	17	3087
	JUPITER	E.	74	21	32	3009	72	51	30	3016	71	21	37	3022	69	51	51	3028
	SATURN	E.	81	16	6	3006	79	46	1	3013	78	16	5	3019	76	46	16	3025
	<i>α</i> Aquilæ	E.	101	0	31	3436	99	38	55	3438	98	17	22	3441	96	55	52	3444
19	SUN	W.	64	45	8	3443	66	6	36	3446	67	28	0	3449	68	49	21	3451
	VENUS	W.	35	20	50	3574	36	39	53	3574	37	58	55	3574	39	17	58	3575
	Antares	E.	37	27	53	3131	36	0	20	3140	34	32	59	3149	33	5	49	3158
	JUPITER	E.	62	24	49	3053	60	55	43	3057	59	26	41	3060	57	57	43	3064
	SATURN	E.	69	18	55	3050	67	49	44	3054	66	20	38	3057	64	51	36	3060
	<i>α</i> Aquilæ	E.	90	9	19	3463	88	48	13	3466	87	27	11	3470	86	6	13	3474
20	SUN	W.	75	35	37	3457	76	56	49	3456	78	18	2	3455	79	39	16	3454
	VENUS	W.	45	53	12	3571	47	12	18	3569	48	31	26	3566	49	50	37	3564
	Spica	W.	20	24	42	3069	21	53	29	3069	23	22	17	3068	24	51	5	3067
	MARS	W.	19	45	59	3330	21	9	36	3327	22	33	17	3324	23	57	1	3321
	JUPITER	E.	50	33	44	3073	49	5	2	3074	47	36	22	3075	46	7	41	3074
	SATURN	E.	57	27	7	3068	55	58	18	3069	54	29	30	3068	53	0	41	3068
	<i>α</i> Aquilæ	E.	79	22	33	3495	78	2	3	3500	76	41	39	3504	75	21	19	3509
21	SUN	W.	86	26	1	3440	87	47	33	3436	89	9	9	3431	90	30	51	3425
	VENUS	W.	56	27	22	3545	57	46	57	3539	59	6	38	3533	60	26	26	3526
	Spica	W.	32	15	40	3054	33	44	46	3050	35	13	56	3046	36	43	12	3041
	MARS	W.	30	56	36	3302	32	20	45	3297	33	44	59	3292	35	9	20	3287
	JUPITER	E.	38	44	7	3068	37	15	19	3066	35	46	28	3064	34	17	34	3062
	SATURN	E.	45	36	19	3059	44	7	19	3056	42	38	15	3052	41	9	7	3049
	<i>α</i> Aquilæ	E.	68	41	5	3536	67	21	21	3543	66	1	44	3550	64	42	15	3558
22	SUN	W.	97	21	7	3390	98	43	35	3382	100	6	12	3373	101	28	59	3364
	VENUS	W.	67	7	20	3488	68	27	58	3479	69	48	46	3469	71	9	45	3459
	Spica	W.	44	11	17	3009	45	41	19	3001	47	11	30	2993	48	41	52	2984
	MARS	W.	42	12	54	3251	43	38	3	3242	45	3	22	3233	46	28	52	3225
	JUPITER	E.	26	52	17	3049	25	23	5	3047	23	53	50	3045	22	24	33	3043
	SATURN	E.	33	42	13	3026	32	12	33	3021	30	42	47	3016	29	12	54	3011
	<i>α</i> Aquilæ	E.	58	7	12	3608	56	48	46	3621	55	30	34	3635	54	12	37	3651
	<i>α</i> Pegasi	E.	104	7	20	3173	102	40	39	3163	101	13	47	3153	99	46	43	3143
23	SUN	W.	108	25	47	3311	109	49	46	3299	111	13	58	3287	112	38	25	3274

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.			P. L. of Diff.	IIIh.			P. L. of Diff.	VIh.			P. L. of Diff.	IXh.			P. L. of Diff.
			°	'	"		°	'	"		°	'	"		°	'	"	
23	VENUS	W.	72	30	55	3418	73	52	17	3438	75	13	51	3426	76	35	39	3414
	Spica	W.	50	12	25	2975	51	43	9	2965	53	14	5	2955	54	45	13	2945
	MARS	W.	47	54	32	3214	49	20	24	3204	50	46	27	3194	52	12	44	3183
	α Aquilæ	E.	52	54	58	3670	51	37	39	3691	50	20	42	3713	49	4	9	3738
	α Pegasi	E.	98	19	26	3133	96	51	57	3123	95	24	16	3112	93	56	21	3101
24	SUN	W.	114	3	7	3262	115	28	3	3248	116	53	15	3231	118	18	44	3220
	VENUS	W.	83	28	8	3348	84	51	24	3334	86	14	56	3319	87	38	45	3305
	Spica	W.	62	24	23	2887	63	56	58	2875	65	29	49	2862	67	2	56	2848
	MARS	W.	59	27	36	3122	60	55	19	3108	62	23	19	3095	63	51	35	3081
	α Pegasi	E.	86	33	22	3044	85	4	4	3032	83	34	31	3020	82	4	43	3009
25	VENUS	W.	94	42	16	3226	96	7	54	3209	97	33	52	3193	99	0	10	3176
	Spica	W.	74	52	57	2779	76	27	53	2764	78	3	8	2749	79	38	43	2734
	MARS	W.	71	17	20	3006	72	47	25	2991	74	17	49	2975	75	48	33	2961
	Antares	W.	29	57	25	2883	31	30	5	2861	33	3	14	2838	34	36	53	2816
	α Pegasi	E.	74	32	1	2948	73	0	43	2937	71	29	11	2925	69	57	24	2913
	α Arietis	E.	117	49	0	2848	116	15	34	2830	114	41	45	2813	113	7	34	2797
26	VENUS	W.	106	16	46	3090	107	45	8	3073	109	13	51	3055	110	42	56	3038
	Spica	W.	87	41	44	2656	89	19	23	2640	90	57	23	2624	92	35	45	2609
	MARS	W.	83	27	16	2877	85	0	4	2861	86	33	12	2844	88	6	43	2828
	Antares	W.	42	32	2	2714	44	8	23	2695	45	45	10	2676	47	22	22	2658
	JUPITER	W.	17	20	31	2747	18	56	8	2719	20	32	22	2692	22	9	12	2667
	α Arietis	E.	105	11	15	2713	103	34	53	2697	101	58	9	2681	100	21	3	2664
27	Spica	W.	100	52	59	2530	102	33	31	2514	104	14	25	2498	105	55	41	2483
	MARS	W.	95	59	40	2744	97	35	21	2728	99	11	22	2712	100	47	46	2696
	Antares	W.	55	34	30	2569	57	14	8	2552	58	54	9	2535	60	34	34	2519
	JUPITER	W.	30	21	18	2561	32	1	6	2543	33	41	20	2525	35	21	59	2507
	SATURN	W.	23	34	49	2572	25	14	22	2551	26	54	24	2531	28	34	54	2512
	α Arietis	E.	92	10	3	2583	90	30	45	2568	88	51	6	2553	87	11	6	2538
28	Antares	W.	69	2	14	2441	70	44	51	2426	72	27	49	2412	74	11	7	2398
	JUPITER	W.	43	51	11	2426	45	34	9	2411	47	17	27	2396	49	1	7	2382
	SATURN	W.	37	3	52	2425	38	46	51	2409	40	30	13	2394	42	13	56	2379
	α Arietis	E.	78	45	58	2466	77	3	57	2453	75	21	38	2441	73	39	1	2428
29	Antares	W.	82	52	26	2334	84	37	36	2323	86	23	2	2312	88	8	44	2301
	JUPITER	W.	57	44	19	2318	59	29	52	2307	61	15	42	2296	63	1	49	2285
	SATURN	W.	50	57	38	2313	52	43	18	2301	54	29	16	2290	56	15	30	2279
	α Arietis	E.	65	1	44	2374	63	17	32	2364	61	33	6	2355	59	48	28	2348
30	Antares	W.	97	0	51	2257	98	47	54	2250	100	35	8	2243	102	22	32	2237
	JUPITER	W.	71	56	3	2238	73	43	34	2231	75	31	15	2224	77	19	7	2217
	SATURN	W.	65	10	27	2233	66	58	7	2225	68	45	58	2217	70	34	0	2210
	α Arietis	E.	51	2	55	2223	49	17	28	2320	47	31	57	2318	45	46	24	2318
	Aldebaran	E.	83	47	48	2237	82	0	16	2229	80	12	32	2222	78	24	37	2216
31	JUPITER	W.	86	20	41	2191	88	9	22	2188	89	58	7	2185	91	46	57	2183
	SATURN	W.	79	36	29	2184	81	25	21	2180	83	14	18	2177	85	3	20	2174
	Aldebaran	E.	69	22	55	2191	67	34	14	2188	65	45	27	2185	63	56	36	2182

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
23	VENUS W.	77 57 40	3401	79 19 55	3389	80 42 24	3376	82 5 8	3362
	Spica W.	56 16 35	2934	57 48 10	2923	59 20 0	2912	60 52 4	2900
	MARS W.	53 39 14	3171	55 5 57	3159	56 32 55	3147	58 0 8	3134
	<i>α</i> Aquilæ E.	47 48 2	3767	46 32 25	3800	45 17 23	3837	44 2 59	3879
	<i>α</i> Pegasi E.	92 28 12	3090	90 59 50	3079	89 31 15	3068	88 2 26	3056
24	SUN W.	119 44 29	3207	121 10 30	3193	122 36 48	3178	124 3 24	3163
	VENUS W.	89 2 51	3290	90 27 14	3274	91 51 56	3258	93 16 57	3242
	Spica W.	68 36 21	2835	70 10 3	2822	71 44 2	2808	73 18 20	2793
	MARS W.	65 20 8	3067	66 48 58	3052	68 18 7	3037	69 47 34	3022
	<i>α</i> Pegasi E.	80 34 41	2997	79 4 24	2985	77 33 51	2973	76 3 4	2960
25	VENUS W.	100 26 48	3159	101 53 46	3142	103 21 5	3124	104 48 45	3107
	Spica W.	81 14 38	2719	82 50 53	2703	84 27 29	2687	86 4 26	2672
	MARS W.	77 19 36	2943	78 51 0	2927	80 22 44	2910	81 54 50	2894
	Antares W.	36 11 0	2795	37 45 35	2774	39 20 37	2754	40 56 6	2734
	<i>α</i> Pegasi E.	68 25 22	2902	66 53 6	2891	65 20 35	2880	63 47 51	2870
	<i>α</i> Arietis E.	111 33 2	2780	109 58 8	2764	108 22 53	2747	106 47 15	2730
26	VENUS W.	112 12 22	3020	113 42 10	3003	115 12 19	2985	116 42 50	2968
	Spica W.	94 14 28	2593	95 53 33	2577	97 33 0	2561	99 12 49	2545
	MARS W.	89 40 35	2811	91 14 49	2795	92 49 24	2778	94 24 21	2761
	Antares W.	48 59 59	2640	50 38 0	2622	52 16 26	2604	53 55 16	2586
	JUPITER W.	23 46 37	2643	25 24 34	2621	27 3 1	2600	28 41 56	2580
	<i>α</i> Arietis E.	98 43 35	2648	97 5 45	2632	95 27 33	2615	93 48 59	2599
27	Spica W.	107 37 18	2467	109 19 17	2453	111 1 36	2438	112 44 16	2424
	MARS W.	102 24 31	2681	104 1 37	2665	105 39 4	2649	107 16 52	2633
	Antares W.	62 15 21	2502	63 56 31	2486	65 38 3	2470	67 19 58	2455
	JUPITER W.	37 3 3	2490	38 44 31	2474	40 26 21	2457	42 8 35	2441
	SATURN W.	30 15 51	2493	31 57 14	2475	33 39 3	2458	35 21 16	2441
	<i>α</i> Arietis E.	85 30 45	2522	83 50 3	2508	82 9 1	2494	80 27 40	2480
28	Antares W.	75 54 45	2384	77 38 43	2371	79 22 59	2358	81 7 34	2346
	JUPITER W.	50 45 7	2369	52 29 27	2356	54 14 5	2343	55 59 3	2330
	SATURN W.	43 58 1	2365	45 42 26	2351	47 27 11	2338	49 12 15	2325
	<i>α</i> Arietis E.	71 56 6	2416	70 12 54	2405	68 29 26	2394	66 45 42	2384
29	Antares W.	89 54 42	2291	91 40 54	2282	93 27 20	2273	95 13 59	2265
	JUPITER W.	64 48 11	2274	66 34 48	2265	68 21 40	2256	70 8 45	2247
	SATURN W.	58 2 0	2268	59 48 46	2259	61 35 46	2250	63 23 0	2241
	<i>α</i> Arietis E.	58 3 39	2342	56 18 40	2336	54 33 32	2331	52 48 17	2326
30	Antares W.	104 10 6	2231	105 57 48	2226	107 45 37	2221	109 33 33	2216
	JUPITER W.	79 7 9	2211	80 55 20	2206	82 43 39	2200	84 32 6	2195
	SATURN W.	72 22 13	2204	74 10 35	2198	75 59 5	2193	77 47 43	2188
	<i>α</i> Arietis E.	44 0 51	2320	42 15 20	2324	40 29 54	2328	38 44 35	2333
	Aldebaran E.	76 36 33	2210	74 48 20	2204	72 59 59	2199	71 11 30	2195
31	JUPITER W.	93 35 51	2181	95 24 47	2179	97 13 46	2178	99 2 47	2178
	SATURN W.	86 52 26	2172	88 41 35	2171	90 30 46	2170	92 19 59	2169
	Aldebaran E.	62 7 42	2180	60 18 45	2179	58 29 46	2178	56 40 46	2178

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to		Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Subtracted from Apparent Time.				
		h m s	s	° ' "	"	' "	s	m s	s		
SUN.	1	10 39 52.42	9.073	N. 8 27 6.0	-54.27	15 52.31	64.34	0 3.53	0.781		
Mon.	2	10 43 30.03	9.061	8 5 19.4	54.60	15 52.54	64.29	0 15.35	0.793		
Tues.	3	10 47 7.36	9.050	7 43 24.9	54.93	15 52.78	64.25	0 34.53	0.804		
Wed.	4	10 50 44.44	9.040	7 21 22.8	-55.24	15 53.01	64.21	0 53.95	0.814		
Thur.	5	10 54 21.29	9.031	6 59 13.4	55.54	15 53.25	64.18	1 13.59	0.823		
Frid.	6	10 57 57.92	9.022	6 36 57.0	55.82	15 53.49	64.15	1 33.46	0.832		
Sat.	7	11 1 34.35	9.014	6 14 34.2	-56.08	15 53.73	64.12	1 53.53	0.840		
SUN.	8	11 5 10.60	9.007	5 52 4.9	56.34	15 53.97	64.09	2 13.77	0.847		
Mon.	9	11 8 46.69	9.001	5 29 29.7	56.59	15 54.21	64.07	2 34.18	0.854		
Tues.	10	11 12 22.63	8.995	5 6 48.9	-56.81	15 54.46	64.04	2 54.74	0.860		
Wed.	11	11 15 58.43	8.989	4 44 2.9	57.02	15 54.71	64.02	3 15.43	0.865		
Thur.	12	11 19 34.12	8.985	4 21 11.9	57.22	15 54.96	64.00	3 36.24	0.869		
Frid.	13	11 23 9.71	8.981	3 58 16.4	-57.40	15 55.22	63.99	3 57.15	0.873		
Sat.	14	11 26 45.20	8.978	3 35 16.7	57.57	15 55.48	63.98	4 18.16	0.877		
SUN.	15	11 30 20.63	8.975	3 12 13.2	57.73	15 55.74	63.97	4 39.22	0.879		
Mon.	16	11 33 56.01	8.973	2 49 6.1	-57.87	15 56.00	63.97	5 0.35	0.881		
Tues.	17	11 37 31.34	8.972	2 25 55.9	57.99	15 56.26	63.97	5 21.50	0.882		
Wed.	18	11 41 6.66	8.972	2 2 42.8	58.09	15 56.52	63.97	5 42.68	0.883		
Thur.	19	11 44 41.98	8.972	1 39 27.3	-58.19	15 56.78	63.97	6 3.85	0.882		
Frid.	20	11 48 17.32	8.974	1 16 9.6	58.27	15 57.04	63.98	6 25.01	0.881		
Sat.	21	11 51 52.69	8.977	0 52 50.2	58.34	15 57.30	63.99	6 46.13	0.879		
SUN.	22	11 55 28.13	8.979	0 29 29.1	-58.40	15 57.57	64.00	7 7.19	0.876		
Mon.	23	11 59 3.65	8.982	N. 0 6 7.1	58.44	15 57.84	64.02	7 28.18	0.872		
Tues.	24	12 2 39.25	8.987	S. 0 17 15.8	58.47	15 58.11	64.04	7 49.06	0.867		
Wed.	25	12 6 14.98	8.993	0 40 39.1	-58.48	15 58.38	64.06	8 9.81	0.861		
Thur.	26	12 9 50.86	8.999	1 4 2.6	58.48	15 58.65	64.08	8 30.42	0.855		
Frid.	27	12 13 26.92	9.006	1 27 26.0	58.48	15 58.93	64.11	8 50.87	0.847		
Sat.	28	12 17 3.17	9.015	1 50 49.0	-58.45	15 59.20	64.14	9 11.11	0.839		
SUN.	29	12 20 39.63	9.024	2 14 11.1	58.41	15 59.48	64.17	9 31.14	0.829		
Mon.	30	12 24 16.34	9.035	2 37 32.0	58.34	15 59.75	64.21	9 50.93	0.819		
Tues.	31	12 27 53.32	9.046	S. 3 0 51.5	-58.27	16 0.03	64.25	10 10.45	0.807		

NOTE.—The mean time of semidiameter passing may be found by subtracting 0.18 from the sidereal time.
The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing; south declinations increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Subtracted from		Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Added to Mean Time.			
<i>SUN.</i>	1	^h 10 ^m 39 ^s 52.41	^s +9.075	[°] N. 8 ['] 27 ["] 6.0	["] - 54.28	^m 0 ^s 3.53	^s + 0.781	^h 10 ^m 39 ^s 48.88	
Mon.	2	10 43 30.07	9.063	8 5 19.2	54.61	0 15.36	0.793	10 43 45.43	
Tues.	3	10 47 7.45	9.052	7 43 24.4	54.94	0 34.54	0.804	10 47 41.98	
Wed.	4	10 50 44.58	+ 9.042	7 21 22.0	- 55.25	0 53.96	+ 0.814	10 51 38.54	
Thur.	5	10 54 21.48	9.033	6 59 12.3	55.55	1 13.61	0.823	10 55 35.09	
Frid.	6	10 57 58.16	9.024	6 36 55.6	55.83	1 33.48	0.832	10 59 31.64	
Sat.	7	11 1 34.64	+ 9.016	6 14 32.4	- 56.10	1 53.55	+ 0.840	11 3 28.20	
<i>SUN.</i>	8	11 5 10.94	9.009	5 52 2.8	56.36	2 13.80	0.847	11 7 24.75	
Mon.	9	11 8 47.08	9.003	5 29 27.3	56.60	2 34.22	0.854	11 11 21.30	
Tues.	10	11 12 23.07	+ 8.997	5 6 46.1	- 56.82	2 54.78	+ 0.860	11 15 17.85	
Wed.	11	11 15 58.92	8.991	4 43 59.8	57.03	3 15.48	0.865	11 19 14.40	
Thur.	12	11 19 34.66	8.987	4 21 8.5	57.23	3 36.29	0.869	11 23 10.96	
Frid.	13	11 23 10.30	+ 8.983	3 58 12.6	- 57.41	3 57.21	+ 0.873	11 27 7.51	
Sat.	14	11 26 45.84	8.980	3 35 12.6	57.58	4 18.22	0.877	11 31 4.06	
<i>SUN.</i>	15	11 30 21.32	8.977	3 12 8.7	57.74	4 39.29	0.879	11 35 0.61	
Mon.	16	11 33 56.75	+ 8.975	2 49 1.3	- 57.88	5 0.42	+ 0.881	11 38 57.16	
Tues.	17	11 37 32.14	8.974	2 25 50.7	58.00	5 21.58	0.882	11 42 53.72	
Wed.	18	11 41 7.51	8.974	2 2 37.3	58.11	5 42.76	0.883	11 46 50.27	
Thur.	19	11 44 42.88	+ 8.974	1 39 21.4	- 58.21	6 3.94	+ 0.882	11 50 46.82	
Frid.	20	11 48 18.27	8.976	1 16 3.4	58.29	6 25.10	0.881	11 54 43.37	
Sat.	21	11 51 53.70	8.979	0 52 43.6	58.36	6 46.22	0.879	11 58 39.92	
<i>SUN.</i>	22	11 55 29.19	+ 8.981	0 29 22.2	- 58.41	7 7.29	+ 0.876	12 2 36.48	
Mon.	23	11 59 4.76	8.984	N. 0 5 59.8	58.45	7 28.28	0.872	12 6 33.03	
Tues.	24	12 2 40.42	8.989	S. 0 17 23.4	58.48	7 49.17	0.867	12 10 29.58	
Wed.	25	12 6 16.20	+ 8.995	0 40 47.1	- 58.49	8 9.93	+ 0.861	12 14 26.13	
Thur.	26	12 9 52.14	9.002	1 4 10.9	58.49	8 30.54	0.855	12 18 22.69	
Frid.	27	12 13 28.25	9.009	1 27 34.8	58.48	8 50.99	0.847	12 22 19.24	
Sat.	28	12 17 4.55	+ 9.018	1 50 58.0	- 58.45	9 11.24	+ 0.839	12 26 15.79	
<i>SUN.</i>	29	12 20 41.07	9.027	2 14 20.4	58.41	9 31.27	0.829	12 30 12.34	
Mon.	30	12 24 17.83	9.038	2 37 41.6	58.36	9 51.06	0.819	12 34 8.89	
Tues.	31	12 27 54.86	+ 9.049	S. 3 1 1.4	- 58.29	10 10.58	+ 0.807	12 38 5.45	

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
 The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing; south declinations, increasing.

Diff. for 1 Hour,
 +9°.8565.
 (Table III.)

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.	
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.				
		λ	λ'						
		$^{\circ}$ $'$ $''$	$^{\circ}$ $'$ $''$	$''$	$''$			h m s	
1	244	158 19 54.2	19 7.2	145.18	+ 0.20	0.0038418	-42.7	13 18 0.03	
2	245	159 17 59.4	17 12.3	145.26	+ 0.07	0.0037390	43.0	13 14 4.12	
3	246	160 16 6.5	15 19.3	145.34	- 0.07	0.0036354	43.3	13 10 8.22	
4	247	161 14 15.6	13 28.3	145.42	- 0.21	0.0035312	-43.6	13 6 12.31	
5	248	162 12 26.8	11 39.3	145.51	0.35	0.0034259	44.0	13 2 16.40	
6	249	163 10 40.0	9 52.4	145.59	0.48	0.0033197	44.5	12 58 20.50	
7	250	164 8 55.2	8 7.6	145.68	- 0.57	0.0032123	-45.0	12 54 24.59	
8	251	165 7 12.5	6 24.8	145.76	0.66	0.0031037	45.6	12 50 28.68	
9	252	166 5 31.9	4 44.1	145.85	0.71	0.0029937	46.1	12 46 32.78	
10	253	167 3 53.2	3 5.4	145.93	- 0.73	0.0028823	-46.7	12 42 36.87	
11	254	168 2 16.6	1 28.6	146.01	0.71	0.0027695	47.3	12 38 40.96	
12	255	168 60 41.8	59 53.8	146.09	0.67	0.0026553	47.9	12 34 45.06	
13	256	169 59 8.9	58 20.8	146.17	- 0.61	0.0025397	-48.5	12 30 49.15	
14	257	170 57 37.9	56 49.7	146.24	0.52	0.0024227	49.0	12 26 53.24	
15	258	171 56 8.7	55 20.4	146.32	0.41	0.0023044	49.5	12 22 57.34	
16	259	172 54 41.2	53 52.8	146.39	- 0.30	0.0021850	-50.0	12 19 1.43	
17	260	173 53 15.5	52 27.0	146.46	0.19	0.0020644	50.4	12 15 5.53	
18	261	174 51 51.5	51 3.0	146.53	- 0.08	0.0019428	50.8	12 11 9.62	
19	262	175 50 29.2	49 40.6	146.61	+ 0.03	0.0018203	-51.1	12 7 13.71	
20	263	176 49 8.6	48 19.9	146.68	0.12	0.0016971	51.4	12 3 17.81	
21	264	177 47 49.7	47 0.9	146.75	0.22	0.0015733	51.7	11 59 21.90	
22	265	178 46 32.5	45 43.6	146.82	+ 0.27	0.0014490	-51.9	11 55 26.00	
23	266	179 45 17.0	44 28.1	146.89	0.31	0.0013243	52.0	11 51 30.09	
24	267	180 44 3.3	43 14.2	146.96	0.32	0.0011994	52.0	11 47 34.18	
25	268	181 42 51.3	42 2.2	147.04	+ 0.30	0.0010745	-52.0	11 43 38.28	
26	269	182 41 41.1	40 51.9	147.12	0.24	0.0009497	51.9	11 39 42.37	
27	270	183 40 32.8	39 43.5	147.20	0.16	0.0008252	51.8	11 35 46.46	
28	271	184 39 26.5	38 37.1	147.28	+ 0.04	0.0007010	-51.7	11 31 50.56	
29	272	185 38 22.2	37 32.7	147.37	- 0.08	0.0005772	51.5	11 27 54.65	
30	273	186 37 20.0	36 30.5	147.46	0.22	0.0004538	51.3	11 23 58.75	
31	274	187 36 20.0	35 30.4	147.56	- 0.36	0.0003308	-51.1	11 20 2.84	
NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0 ^d .0 of the Besselian fictitious year.								Diff. for 1 Hour, -9 ^s .8296. (Table II.)	

GREENWICH MEAN TIME.									
Day of the Month.	THE MOON'S								
	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	' "	' "	' "	"	' "	"	h m	m	d
1	16 22.5	16 22.6	59 59.2	+ 0.15	59 59.5	- 0.08	14 39.8	+ 2.28	18.1
2	16 21.9	16 20.5	59 57.1	- 0.31	59 52.1	0.51	15 35.3	2.34	19.1
3	16 18.6	16 16.1	59 44.9	0.68	59 35.7	0.83	16 32.3	2.39	20.1
4	16 13.1	16 9.8	59 24.9	- 0.95	59 12.8	- 1.05	17 30.1	+ 2.41	21.1
5	16 6.3	16 2.5	58 59.7	1.13	58 45.7	1.18	18 27.8	2.39	22.1
6	15 58.5	15 54.5	58 31.3	1.22	58 16.4	1.25	19 24.4	2.32	23.1
7	15 50.4	15 46.2	58 1.3	- 1.26	57 46.1	- 1.27	20 18.8	+ 2.21	24.1
8	15 42.1	15 37.9	57 30.8	1.27	57 15.6	1.27	21 10.7	2.11	25.1
9	15 33.8	15 29.7	57 0.4	1.26	56 45.3	1.25	21 59.9	2.00	26.1
10	15 25.6	15 21.6	56 30.3	- 1.24	56 15.5	- 1.23	22 46.9	+ 1.92	27.1
11	15 17.6	15 13.7	56 0.9	1.20	55 46.6	1.17	23 32.1	1.86	28.1
12	15 9.9	15 6.3	55 32.7	1.14	55 19.3	1.09	0		29.1
13	15 2.8	14 59.5	55 6.5	- 1.03	54 54.5	- 0.96	0 16.3	+ 1.83	0.6
14	14 56.5	14 53.8	54 43.4	0.88	54 33.4	0.78	0 59.9	1.82	1.6
15	14 51.4	14 49.4	54 24.7	0.66	54 17.4	0.53	1 43.6	1.83	2.6
16	14 47.9	14 46.8	54 11.8	- 0.39	54 8.0	- 0.23	2 28.0	+ 1.87	3.6
17	14 46.3	14 46.4	54 6.1	- 0.07	54 6.4	+ 0.11	3 13.2	1.91	4.6
18	14 47.1	14 48.4	54 8.9	+ 0.30	54 13.8	0.50	3 59.7	1.96	5.6
19	14 50.4	14 53.1	54 21.1	+ 0.71	54 30.9	+ 0.92	4 47.4	+ 2.01	6.6
20	14 56.4	15 0.5	54 43.2	1.13	54 58.1	1.34	5 36.1	2.05	7.6
21	15 5.2	15 10.5	55 15.3	1.53	55 34.9	1.72	6 25.6	2.07	8.6
22	15 16.4	15 22.9	55 56.6	+ 1.89	56 20.3	+ 2.03	7 15.7	+ 2.09	9.6
23	15 29.7	15 36.9	56 45.5	2.15	57 11.9	2.24	8 6.0	2.10	10.6
24	15 44.4	15 51.8	57 39.2	2.28	58 6.7	2.28	8 56.6	2.12	11.6
25	15 59.2	16 6.4	58 33.9	+ 2.23	59 0.2	+ 2.13	9 47.7	+ 2.14	12.6
26	16 13.1	16 19.3	59 24.9	1.97	59 47.5	1.76	10 39.5	2.18	13.6
27	16 24.6	16 29.1	60 7.2	1.50	60 23.6	1.21	11 32.5	2.24	14.6
28	16 32.6	16 34.9	60 36.3	+ 0.88	60 44.8	+ 0.53	12 27.2	+ 2.32	15.6
29	16 36.1	16 36.1	60 49.1	+ 0.18	60 49.1	- 0.17	13 23.8	2.40	16.6
30	16 34.9	16 32.7	60 45.0	- 0.50	60 36.9	0.81	14 22.3	2.46	17.6
31	16 29.6	16 25.7	60 25.4	- 1.08	60 10.9	- 1.31	15 21.9	+ 2.49	18.6

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 1.					TUESDAY 3.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	0 47 43.34	2.3246	N. 8 1 24.6	11.643	0	2 42 4.93	2.4393	N. 15 59 36.8	7.817
1	0 50 2.88	2.3268	8 13 1.7	11.593	1	2 44 31.35	2.4414	16 7 22.6	7.799
2	0 52 22.56	2.3292	8 24 35.7	11.542	2	2 46 57.90	2.4435	16 15 1.9	7.601
3	0 54 42.38	2.3314	8 36 6.7	11.489	3	2 49 24.57	2.4455	16 22 34.7	7.493
4	0 57 2.33	2.3338	8 47 34.4	11.435	4	2 51 51.36	2.4475	16 30 1.0	7.383
5	0 59 22.43	2.3362	8 58 58.9	11.380	5	2 54 18.27	2.4494	16 37 20.6	7.271
6	1 1 42.67	2.3385	9 10 20.0	11.323	6	2 56 45.29	2.4513	16 44 33.5	7.159
7	1 4 3.05	2.3408	9 21 37.7	11.266	7	2 59 12.43	2.4533	16 51 39.7	7.047
8	1 6 23.57	2.3433	9 32 51.9	11.207	8	3 1 39.68	2.4551	16 58 39.2	6.934
9	1 8 44.24	2.3457	9 44 2.5	11.146	9	3 4 7.04	2.4569	17 5 31.8	6.821
10	1 11 5.05	2.3480	9 55 9.4	11.084	10	3 6 34.51	2.4587	17 12 17.5	6.708
11	1 13 26.00	2.3505	10 6 12.6	11.021	11	3 9 2.08	2.4603	17 18 56.3	6.590
12	1 15 47.11	2.3530	10 17 11.9	10.956	12	3 11 29.74	2.4619	17 25 28.2	6.473
13	1 18 8.36	2.3554	10 28 7.3	10.890	13	3 13 57.51	2.4636	17 31 53.0	6.355
14	1 20 29.76	2.3579	10 38 58.7	10.823	14	3 16 25.37	2.4652	17 38 10.8	6.238
15	1 22 51.31	2.3603	10 49 46.0	10.754	15	3 18 53.33	2.4668	17 44 21.5	6.119
16	1 25 13.00	2.3628	11 0 29.2	10.684	16	3 21 21.38	2.4682	17 50 25.1	6.000
17	1 27 34.84	2.3653	11 11 8.1	10.613	17	3 23 49.51	2.4696	17 56 21.5	5.879
18	1 29 56.83	2.3678	11 21 42.7	10.541	18	3 26 17.73	2.4710	18 2 10.6	5.758
19	1 32 18.97	2.3703	11 32 13.0	10.468	19	3 28 46.03	2.4723	18 7 52.5	5.638
20	1 34 41.26	2.3728	11 42 38.8	10.392	20	3 31 14.40	2.4735	18 13 27.1	5.516
21	1 37 3.70	2.3753	11 53 0.0	10.315	21	3 33 42.85	2.4748	18 18 54.4	5.395
22	1 39 26.29	2.3778	12 3 16.6	10.238	22	3 36 11.37	2.4759	18 24 14.3	5.271
23	1 41 49.03	2.3803	N. 12 13 28.6	10.160	23	3 38 39.96	2.4769	N. 18 29 26.9	5.148
MONDAY 2.					WEDNESDAY 4.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	1 44 11.92	2.3828	N. 12 23 35.8	10.080	0	3 41 8.60	2.4779	N. 18 34 32.0	5.023
1	1 46 34.96	2.3853	12 33 38.2	9.998	1	3 43 37.31	2.4790	18 39 29.6	4.898
2	1 48 58.15	2.3878	12 43 35.6	9.916	2	3 46 6.08	2.4800	18 44 19.8	4.773
3	1 51 21.49	2.3903	12 53 28.1	9.833	3	3 48 34.91	2.4809	18 49 2.4	4.648
4	1 53 44.98	2.3928	13 3 15.5	9.748	4	3 51 3.79	2.4817	18 53 37.5	4.522
5	1 56 8.62	2.3952	13 12 57.8	9.662	5	3 53 32.71	2.4823	18 58 5.0	4.395
6	1 58 32.40	2.3976	13 22 34.9	9.574	6	3 56 1.67	2.4830	19 2 24.9	4.268
7	2 0 56.33	2.4001	13 32 6.7	9.485	7	3 58 30.67	2.4837	19 6 37.2	4.141
8	2 3 20.41	2.4026	13 41 33.1	9.396	8	4 0 59.71	2.4843	19 10 41.8	4.013
9	2 5 44.64	2.4050	13 50 54.2	9.306	9	4 3 28.78	2.4848	19 14 38.8	3.886
10	2 8 9.01	2.4074	14 0 9.8	9.214	10	4 5 57.88	2.4852	19 18 28.1	3.757
11	2 10 33.53	2.4098	14 9 19.9	9.121	11	4 8 27.00	2.4856	19 22 9.6	3.628
12	2 12 58.18	2.4121	14 18 24.3	9.027	12	4 10 56.15	2.4859	19 25 43.4	3.499
13	2 15 22.98	2.4146	14 27 23.1	8.932	13	4 13 25.31	2.4861	19 29 9.5	3.370
14	2 17 47.93	2.4169	14 36 16.1	8.835	14	4 15 54.48	2.4863	19 32 27.8	3.241
15	2 20 13.01	2.4193	14 45 3.3	8.738	15	4 18 23.66	2.4863	19 35 38.4	3.112
16	2 22 38.24	2.4217	14 53 44.7	8.640	16	4 20 52.84	2.4863	19 38 41.2	2.982
17	2 25 3.61	2.4239	15 2 20.1	8.540	17	4 23 22.02	2.4863	19 41 36.2	2.851
18	2 27 29.11	2.4262	15 10 49.5	8.440	18	4 25 51.20	2.4863	19 44 23.3	2.721
19	2 29 54.75	2.4284	15 19 12.9	8.338	19	4 28 20.37	2.4861	19 47 2.7	2.591
20	2 32 20.52	2.4307	15 27 30.1	8.236	20	4 30 49.52	2.4858	19 49 34.2	2.460
21	2 34 46.43	2.4329	15 35 41.2	8.133	21	4 33 18.66	2.4854	19 51 57.9	2.329
22	2 37 12.47	2.4351	15 43 46.0	8.028	22	4 35 47.77	2.4850	19 54 13.7	2.198
23	2 39 38.64	2.4372	15 51 44.6	7.923	23	4 38 16.86	2.4845	19 56 21.7	2.068
24	2 42 4.93	2.4393	N. 15 59 36.8	7.817	24	4 40 45.91	2.4839	N. 19 58 21.8	1.937

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 5.					SATURDAY 7.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	4 40 45.91	2.4839	N.19 58 21.8	1.937	0	6 38 3.89	2.3794	N.19 4 12.8	4.036
1	4 43 14.93	2.4833	20 0 14.1	1.806	1	6 40 26.55	2.3759	19 0 7.3	4.147
2	4 45 43.91	2.4827	20 1 58.5	1.675	2	6 42 49.00	2.3724	18 55 55.2	4.257
3	4 48 12.85	2.4819	20 3 35.1	1.544	3	6 45 11.24	2.3688	18 51 36.5	4.367
4	4 50 41.74	2.4811	20 5 3.8	1.413	4	6 47 33.26	2.3651	18 47 11.2	4.476
5	4 53 10.58	2.4803	20 6 24.6	1.282	5	6 49 55.05	2.3614	18 42 39.4	4.584
6	4 55 39.37	2.4793	20 7 37.6	1.152	6	6 52 16.63	2.3577	18 38 1.1	4.692
7	4 58 8.09	2.4782	20 8 42.8	1.022	7	6 54 37.98	2.3539	18 33 16.4	4.798
8	5 0 36.75	2.4771	20 9 40.2	0.891	8	6 56 59.10	2.3502	18 28 25.4	4.903
9	5 3 5.34	2.4759	20 10 29.7	0.760	9	6 59 20.00	2.3464	18 23 28.1	5.008
10	5 5 33.86	2.4747	20 11 11.4	0.629	10	7 1 40.67	2.3425	18 18 24.5	5.112
11	5 8 2.30	2.4733	20 11 45.2	0.499	11	7 4 1.10	2.3386	18 13 14.7	5.214
12	5 10 30.66	2.4719	20 12 11.3	0.370	12	7 6 21.30	2.3347	18 7 58.8	5.316
13	5 12 58.93	2.4704	20 12 29.6	0.240	13	7 8 41.26	2.3308	18 2 36.8	5.418
14	5 15 27.11	2.4689	20 12 40.1	+0.111	14	7 11 0.99	2.3269	17 57 8.7	5.518
15	5 17 55.20	2.4673	20 12 42.9	-0.018	15	7 13 20.49	2.3229	17 51 34.6	5.618
16	5 20 23.19	2.4657	20 12 37.9	0.148	16	7 15 39.74	2.3188	17 45 54.5	5.717
17	5 22 51.08	2.4639	20 12 25.2	0.276	17	7 17 58.75	2.3148	17 40 8.6	5.814
18	5 25 18.86	2.4621	20 12 4.8	0.404	18	7 20 17.52	2.3108	17 34 16.8	5.912
19	5 27 46.53	2.4603	20 11 36.7	0.533	19	7 22 36.04	2.3067	17 28 19.2	6.008
20	5 30 14.09	2.4583	20 11 0.9	0.661	20	7 24 54.32	2.3027	17 22 15.9	6.103
21	5 32 41.53	2.4563	20 10 17.4	0.788	21	7 27 12.36	2.2986	17 16 6.9	6.197
22	5 35 8.84	2.4542	20 9 26.3	0.915	22	7 29 30.15	2.2944	17 9 52.3	6.290
23	5 37 36.03	2.4521	N.20 8 27.6	1.043	23	7 31 47.69	2.2903	N.17 3 32.1	6.382
FRIDAY 6.					SUNDAY 8.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	5 40 3.09	2.4498	N.20 7 21.2	1.169	0	7 34 4.99	2.2863	N.16 57 6.5	6.473
1	5 42 30.01	2.4476	20 6 7.3	1.293	1	7 36 22.04	2.2821	16 50 35.4	6.564
2	5 44 56.80	2.4453	20 4 46.0	1.418	2	7 38 38.84	2.2779	16 43 58.8	6.654
3	5 47 23.44	2.4428	20 3 17.1	1.544	3	7 40 55.39	2.2738	16 37 16.9	6.742
4	5 49 49.94	2.4403	20 1 40.7	1.668	4	7 43 11.69	2.2696	16 30 29.8	6.829
5	5 52 16.28	2.4378	19 59 56.9	1.793	5	7 45 27.74	2.2654	16 23 37.4	6.916
6	5 54 42.47	2.4353	19 58 5.6	1.917	6	7 47 43.54	2.2613	16 16 39.9	7.002
7	5 57 8.51	2.4326	19 56 6.9	2.039	7	7 49 59.09	2.2571	16 9 37.2	7.087
8	5 59 34.38	2.4298	19 54 0.9	2.161	8	7 52 14.39	2.2528	16 2 29.5	7.170
9	6 2 0.09	2.4272	19 51 47.6	2.283	9	7 54 29.43	2.2487	15 55 16.8	7.253
10	6 4 25.64	2.4243	19 49 26.9	2.405	10	7 56 44.23	2.2445	15 47 59.1	7.335
11	6 6 51.01	2.4213	19 46 59.0	2.525	11	7 58 58.77	2.2403	15 40 36.6	7.415
12	6 9 16.20	2.4184	19 44 23.9	2.645	12	8 1 13.06	2.2361	15 33 9.3	7.495
13	6 11 41.22	2.4155	19 41 41.6	2.765	13	8 3 27.10	2.2319	15 25 37.2	7.574
14	6 14 6.06	2.4125	19 38 52.1	2.883	14	8 5 40.89	2.2278	15 18 0.4	7.652
15	6 16 30.72	2.4094	19 35 55.6	3.002	15	8 7 54.43	2.2236	15 10 19.0	7.728
16	6 18 55.19	2.4063	19 32 51.9	3.120	16	8 10 7.72	2.2194	15 2 33.0	7.804
17	6 21 19.47	2.4031	19 29 41.2	3.237	17	8 12 20.76	2.2153	14 54 42.5	7.879
18	6 23 43.56	2.3998	19 26 23.5	3.353	18	8 14 33.55	2.2111	14 46 47.5	7.953
19	6 26 7.45	2.3966	19 22 58.9	3.468	19	8 16 46.09	2.2069	14 38 48.1	8.026
20	6 28 31.15	2.3933	19 19 27.3	3.583	20	8 18 58.38	2.2028	14 30 44.4	8.098
21	6 30 54.64	2.3898	19 15 48.9	3.698	21	8 21 10.42	2.1987	14 22 36.4	8.169
22	6 33 17.93	2.3865	19 12 3.6	3.811	22	8 23 22.22	2.1945	14 14 24.1	8.239
23	6 35 41.02	2.3830	19 8 11.6	3.923	23	8 25 33.76	2.1903	14 6 7.7	8.308
24	6 38 3.89	2.3794	N.19 4 12.8	4.036	24	8 27 45.06	2.1863	N.13 57 47.2	8.376

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 9.					WEDNESDAY 11.				
	<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>		<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>
0	8 27 45.06	2.1863	N. 13 57 47.2	8.376	0	10 8 23.82	2.0185	N. 6 16 10.1	10.489
1	8 29 56.12	2.1823	13 49 22.7	8.443	1	10 10 24.85	2.0158	6 5 40.1	10.511
2	8 32 6.93	2.1782	13 40 54.1	8.509	2	10 12 25.72	2.0133	5 55 8.8	10.531
3	8 34 17.50	2.1742	13 32 21.6	8.574	3	10 14 26.44	2.0107	5 44 36.4	10.550
4	8 36 27.83	2.1701	13 23 45.2	8.638	4	10 16 27.00	2.0081	5 34 2.8	10.569
5	8 38 37.91	2.1660	13 15 5.1	8.700	5	10 18 27.41	2.0056	5 23 28.1	10.587
6	8 40 47.75	2.1621	13 6 21.2	8.762	6	10 20 27.67	2.0031	5 12 52.4	10.603
7	8 42 57.36	2.1582	12 57 33.6	8.823	7	10 22 27.78	2.0007	5 2 15.7	10.619
8	8 45 6.73	2.1542	12 48 42.4	8.883	8	10 24 27.75	1.9982	4 51 38.1	10.634
9	8 47 15.86	2.1502	12 39 47.6	8.943	9	10 26 27.57	1.9958	4 40 59.6	10.648
10	8 49 24.75	2.1463	12 30 49.3	9.001	10	10 28 27.25	1.9935	4 30 20.3	10.662
11	8 51 33.41	2.1423	12 21 47.5	9.058	11	10 30 26.79	1.9912	4 19 40.2	10.674
12	8 53 41.83	2.1384	12 12 42.4	9.113	12	10 32 26.19	1.9889	4 8 59.4	10.685
13	8 55 50.02	2.1346	12 3 33.9	9.168	13	10 34 25.46	1.9868	3 58 18.0	10.696
14	8 57 57.98	2.1308	11 54 22.2	9.222	14	10 36 24.60	1.9846	3 47 35.9	10.706
15	9 0 5.72	2.1270	11 45 7.3	9.275	15	10 38 23.61	1.9825	3 36 53.3	10.715
16	9 2 13.22	2.1232	11 35 49.2	9.328	16	10 40 22.50	1.9804	3 26 10.1	10.723
17	9 4 20.50	2.1195	11 26 28.0	9.379	17	10 42 21.26	1.9783	3 15 26.5	10.730
18	9 6 27.56	2.1158	11 17 3.7	9.429	18	10 44 19.90	1.9763	3 4 42.5	10.737
19	9 8 34.39	2.1120	11 7 36.5	9.478	19	10 46 18.42	1.9743	2 53 58.1	10.743
20	9 10 41.00	2.1083	10 58 6.3	9.527	20	10 48 16.82	1.9724	2 43 13.3	10.748
21	9 12 47.39	2.1047	10 48 33.3	9.573	21	10 50 15.11	1.9706	2 32 28.3	10.752
22	9 14 53.56	2.1010	10 38 57.5	9.620	22	10 52 13.29	1.9687	2 21 43.1	10.755
23	9 16 59.51	2.0974	N. 10 29 18.9	9.665	23	10 54 11.35	1.9668	N. 2 10 57.7	10.758
TUESDAY 10.					THURSDAY 12.				
	<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>		<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>
0	9 19 5.25	2.0939	N. 10 19 37.7	9.709	0	10 56 9.31	1.9652	N. 2 0 12.2	10.759
1	9 21 10.78	2.0904	10 9 53.8	9.753	1	10 58 7.17	1.9634	1 49 26.6	10.760
2	9 23 16.10	2.0869	10 0 7.4	9.794	2	11 0 4.92	1.9618	1 38 41.0	10.760
3	9 25 21.21	2.0834	9 50 18.5	9.837	3	11 2 2.58	1.9602	1 27 55.4	10.759
4	9 27 26.11	2.0800	9 40 27.0	9.878	4	11 4 0.14	1.9586	1 17 9.9	10.758
5	9 29 30.81	2.0767	9 30 33.2	9.916	5	11 5 57.61	1.9570	1 6 24.5	10.755
6	9 31 35.31	2.0733	9 20 37.1	9.954	6	11 7 54.98	1.9554	0 55 39.3	10.753
7	9 33 39.60	2.0699	9 10 38.7	9.993	7	11 9 52.26	1.9540	0 44 54.2	10.749
8	9 35 43.70	2.0667	9 0 38.0	10.029	8	11 11 49.46	1.9526	0 34 9.4	10.744
9	9 37 47.60	2.0633	8 50 35.2	10.065	9	11 13 46.57	1.9512	0 23 24.9	10.738
10	9 39 51.30	2.0601	8 40 30.2	10.100	10	11 15 43.60	1.9498	0 12 40.8	10.733
11	9 41 54.81	2.0568	8 30 23.2	10.133	11	11 17 40.55	1.9485	N. 0 1 57.0	10.726
12	9 43 58.12	2.0537	8 20 14.2	10.167	12	11 19 37.42	1.9473	S. 0 8 46.3	10.718
13	9 46 1.25	2.0506	8 10 3.2	10.198	13	11 21 34.22	1.9460	0 19 29.1	10.709
14	9 48 4.19	2.0475	7 59 50.4	10.229	14	11 23 30.94	1.9448	0 30 11.4	10.700
15	9 50 6.95	2.0445	7 49 35.7	10.259	15	11 25 27.59	1.9437	0 40 53.1	10.690
16	9 52 9.53	2.0414	7 39 19.3	10.288	16	11 27 24.18	1.9426	0 51 34.2	10.680
17	9 54 11.92	2.0384	7 29 1.1	10.317	17	11 29 20.70	1.9415	1 2 14.7	10.668
18	9 56 14.14	2.0355	7 18 41.3	10.344	18	11 31 17.16	1.9405	1 12 54.4	10.656
19	9 58 16.18	2.0326	7 8 19.8	10.371	19	11 33 13.56	1.9395	1 23 33.4	10.643
20	10 0 18.05	2.0297	6 57 56.8	10.397	20	11 35 9.90	1.9385	1 34 11.6	10.629
21	10 2 19.74	2.0268	6 47 32.2	10.422	21	11 37 6.18	1.9376	1 44 48.9	10.615
22	10 4 21.27	2.0241	6 37 6.2	10.445	22	11 39 2.41	1.9368	1 55 25.4	10.600
23	10 6 22.63	2.0213	6 26 38.8	10.463	23	11 40 58.59	1.9359	2 6 0.9	10.583
24	10 8 23.82	2.0185	N. 6 16 10.1	10.489	24	11 42 54.72	1.9352	S. 2 16 35.4	10.567

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 13.					SUNDAY 15.				
0	11 42 54.72	1.9352	S. 2 16 35.4	10.567	0	13 15 36.14	1.9403	S. 10 11 54.3	8.992
1	11 44 50.81	1.9344	2 27 8.9	10.550	1	13 17 32.59	1.9413	10 20 52.4	8.944
2	11 46 46.85	1.9337	2 37 41.4	10.533	2	13 19 29.09	1.9422	10 29 47.6	8.896
3	11 48 42.85	1.9331	2 48 12.8	10.513	3	13 21 25.65	1.9432	10 38 39.9	8.847
4	11 50 38.82	1.9325	2 58 43.0	10.494	4	13 23 22.27	1.9442	10 47 29.2	8.798
5	11 52 34.75	1.9318	3 9 12.1	10.474	5	13 25 18.95	1.9452	10 56 15.6	8.748
6	11 54 30.64	1.9313	3 19 39.9	10.453	6	13 27 15.69	1.9462	11 4 58.9	8.696
7	11 56 26.50	1.9308	3 30 6.4	10.432	7	13 29 12.49	1.9473	11 13 39.1	8.645
8	11 58 22.33	1.9303	3 40 31.7	10.410	8	13 31 9.36	1.9484	11 22 16.3	8.593
9	12 0 18.13	1.9298	3 50 55.6	10.387	9	13 33 6.30	1.9495	11 30 50.3	8.541
10	12 2 13.91	1.9294	4 1 18.1	10.363	10	13 35 3.30	1.9506	11 39 21.2	8.488
11	12 4 9.66	1.9290	4 11 39.1	10.338	11	13 37 0.37	1.9518	11 47 48.8	8.434
12	12 6 5.39	1.9287	4 21 58.7	10.314	12	13 38 57.52	1.9531	11 56 13.3	8.381
13	12 8 1.10	1.9284	4 32 16.8	10.288	13	13 40 54.74	1.9543	12 4 34.5	8.326
14	12 9 56.80	1.9283	4 42 33.3	10.262	14	13 42 52.03	1.9555	12 12 52.4	8.271
15	12 11 52.49	1.9280	4 52 48.2	10.235	15	13 44 49.40	1.9568	12 21 7.0	8.216
16	12 13 48.16	1.9278	5 3 1.5	10.208	16	13 46 46.84	1.9581	12 29 18.3	8.159
17	12 15 43.82	1.9276	5 13 13.1	10.179	17	13 48 44.37	1.9594	12 37 26.1	8.103
18	12 17 39.47	1.9275	5 23 23.0	10.150	18	13 50 41.97	1.9607	12 45 30.6	8.046
19	12 19 35.12	1.9275	5 33 31.1	10.121	19	13 52 39.65	1.9621	12 53 31.6	7.988
20	12 21 30.77	1.9274	5 43 37.5	10.091	20	13 54 37.42	1.9635	13 1 29.1	7.929
21	12 23 26.41	1.9274	5 53 42.0	10.060	21	13 56 35.27	1.9648	13 9 23.1	7.870
22	12 25 22.06	1.9275	6 3 44.7	10.028	22	13 58 33.20	1.9663	13 17 13.5	7.811
23	12 27 17.71	1.9276	S. 6 13 45.4	9.996	23	14 0 31.22	1.9678	S. 13 25 0.4	7.752
SATURDAY 14.					MONDAY 16.				
0	12 29 13.37	1.9277	S. 6 23 44.2	9.963	0	14 2 29.33	1.9693	S. 13 32 43.7	7.691
1	12 31 9.04	1.9278	6 33 41.0	9.930	1	14 4 27.53	1.9708	13 40 23.3	7.630
2	12 33 4.71	1.9280	6 43 35.8	9.897	2	14 6 25.82	1.9723	13 47 59.3	7.569
3	12 35 0.40	1.9283	6 53 28.6	9.862	3	14 8 24.20	1.9738	13 55 31.6	7.508
4	12 36 56.10	1.9285	7 3 19.2	9.826	4	14 10 22.67	1.9753	14 3 0.2	7.445
5	12 38 51.82	1.9288	7 13 7.7	9.790	5	14 12 21.24	1.9769	14 10 25.0	7.382
6	12 40 47.55	1.9291	7 22 54.0	9.753	6	14 14 19.90	1.9784	14 17 46.0	7.318
7	12 42 43.31	1.9295	7 32 38.1	9.717	7	14 16 18.65	1.9800	14 25 3.2	7.254
8	12 44 39.09	1.9298	7 42 20.0	9.679	8	14 18 17.50	1.9817	14 32 16.5	7.190
9	12 46 34.89	1.9303	7 51 59.6	9.641	9	14 20 16.45	1.9833	14 39 26.0	7.125
10	12 48 30.72	1.9308	8 1 36.9	9.602	10	14 22 15.50	1.9850	14 46 31.5	7.059
11	12 50 26.58	1.9313	8 11 11.8	9.562	11	14 24 14.65	1.9866	14 53 33.1	6.994
12	12 52 22.47	1.9318	8 20 44.3	9.522	12	14 26 13.89	1.9883	15 0 30.8	6.928
13	12 54 18.39	1.9323	8 30 14.4	9.481	13	14 28 13.24	1.9900	15 7 24.5	6.861
14	12 56 14.34	1.9328	8 39 42.0	9.439	14	14 30 12.69	1.9917	15 14 14.1	6.793
15	12 58 10.33	1.9335	8 49 7.1	9.397	15	14 32 12.24	1.9934	15 20 59.7	6.726
16	13 0 6.36	1.9341	8 58 29.6	9.354	16	14 34 11.90	1.9952	15 27 41.2	6.658
17	13 2 2.42	1.9348	9 7 49.6	9.312	17	14 36 11.66	1.9968	15 34 18.6	6.588
18	13 3 58.53	1.9355	9 17 7.0	9.268	18	14 38 11.52	1.9986	15 40 51.8	6.519
19	13 5 54.68	1.9363	9 26 21.7	9.223	19	14 40 11.49	2.0004	15 47 20.9	6.450
20	13 7 50.88	1.9370	9 35 33.7	9.178	20	14 42 11.57	2.0023	15 53 45.8	6.379
21	13 9 47.12	1.9378	9 44 43.0	9.133	21	14 44 11.76	2.0040	16 0 6.4	6.308
22	13 11 43.41	1.9386	9 53 49.6	9.087	22	14 46 12.05	2.0058	16 6 22.8	6.238
23	13 13 39.75	1.9394	10 2 53.4	9.039	23	14 48 12.45	2.0077	16 12 34.9	6.166
24	13 15 36.14	1.9403	S. 10 11 54.3	8.992	24	14 50 12.97	2.0096	S. 16 18 42.7	6.094

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 17.					THURSDAY 19.				
	^h ^m ^s	^s	[°] ['] ["]	["]		^h ^m ^s	^s	[°] ['] ["]	["]
0	14 50 12.97	2.0096	S. 16 18 42.7	6.094	0	16 28 50.97	2.0996	S. 19 40 13.2	2.153
1	14 52 13.60	2.0113	16 24 46.2	6.022	1	16 30 57.00	2.1014	19 42 19.7	2.063
2	14 54 14.33	2.0131	16 30 45.3	5.949	2	16 33 3.14	2.1032	19 44 20.7	1.972
3	14 56 15.17	2.0150	16 36 40.1	5.876	3	16 35 9.38	2.1048	19 46 16.3	1.880
4	14 58 16.13	2.0169	16 42 30.4	5.802	4	16 37 15.72	2.1065	19 48 6.3	1.788
5	15 0 17.20	2.0188	16 48 16.3	5.728	5	16 39 22.16	2.1083	19 49 50.8	1.696
6	15 2 18.38	2.0206	16 53 57.7	5.653	6	16 41 28.71	2.1099	19 51 29.8	1.604
7	15 4 19.67	2.0225	16 59 34.6	5.578	7	16 43 35.35	2.1116	19 53 3.3	1.512
8	15 6 21.08	2.0244	17 5 7.0	5.502	8	16 45 42.10	2.1133	19 54 31.2	1.418
9	15 8 22.60	2.0263	17 10 34.8	5.426	9	16 47 48.95	2.1149	19 55 53.5	1.326
10	15 10 24.23	2.0282	17 15 58.1	5.349	10	16 49 55.89	2.1165	19 57 10.3	1.233
11	15 12 25.98	2.0301	17 21 16.7	5.273	11	16 52 2.93	2.1182	19 58 21.4	1.138
12	15 14 27.84	2.0320	17 26 30.8	5.196	12	16 54 10.07	2.1198	19 59 26.9	1.045
13	15 16 29.82	2.0339	17 31 40.2	5.118	13	16 56 17.30	2.1213	20 0 26.8	0.951
14	15 18 31.91	2.0358	17 36 44.9	5.039	14	16 58 24.63	2.1229	20 1 21.0	0.856
15	15 20 34.11	2.0377	17 41 44.9	4.961	15	17 0 32.05	2.1245	20 2 9.5	0.761
16	15 22 36.43	2.0396	17 46 40.2	4.882	16	17 2 39.57	2.1260	20 2 52.3	0.667
17	15 24 38.86	2.0415	17 51 30.7	4.803	17	17 4 47.17	2.1275	20 3 29.5	0.572
18	15 26 41.41	2.0435	17 56 16.5	4.723	18	17 6 54.87	2.1291	20 4 0.9	0.476
19	15 28 44.08	2.0454	18 0 57.5	4.643	19	17 9 2.66	2.1305	20 4 26.6	0.381
20	15 30 46.86	2.0473	18 5 33.6	4.562	20	17 11 10.53	2.1319	20 4 46.6	0.285
21	15 32 49.75	2.0492	18 10 4.9	4.481	21	17 13 18.49	2.1334	20 5 0.8	0.189
22	15 34 52.76	2.0512	18 14 31.3	4.399	22	17 15 26.54	2.1349	20 5 9.3	-0.093
23	15 36 55.89	2.0532	S. 18 18 52.8	4.317	23	17 17 34.68	2.1363	S. 20 5 12.0	+0.003
WEDNESDAY 18.					FRIDAY 20.				
0	15 38 59.14	2.0551	S. 18 23 9.3	4.235	0	17 19 42.89	2.1376	S. 20 5 8.9	0.100
1	15 41 2.50	2.0569	18 27 21.0	4.153	1	17 21 51.19	2.1390	20 5 0.0	0.197
2	15 43 5.97	2.0588	18 31 27.7	4.070	2	17 23 59.57	2.1404	20 4 45.3	0.293
3	15 45 9.56	2.0608	18 35 29.4	3.987	3	17 26 8.04	2.1418	20 4 24.8	0.390
4	15 47 13.26	2.0627	18 39 26.1	3.903	4	17 28 16.58	2.1431	20 3 58.5	0.487
5	15 49 17.08	2.0646	18 43 17.7	3.818	5	17 30 25.21	2.1444	20 3 26.4	0.584
6	15 51 21.01	2.0664	18 47 4.3	3.734	6	17 32 33.91	2.1457	20 2 48.4	0.683
7	15 53 25.05	2.0683	18 50 45.8	3.649	7	17 34 42.69	2.1469	20 2 4.5	0.780
8	15 55 29.21	2.0703	18 54 22.2	3.564	8	17 36 51.54	2.1482	20 1 14.8	0.878
9	15 57 33.48	2.0722	18 57 53.5	3.478	9	17 39 0.47	2.1494	20 0 19.2	0.975
10	15 59 37.87	2.0741	19 1 19.6	3.393	10	17 41 9.47	2.1506	19 59 17.8	1.073
11	16 1 42.37	2.0760	19 4 40.6	3.306	11	17 43 18.54	2.1518	19 58 10.4	1.172
12	16 3 46.99	2.0779	19 7 56.3	3.218	12	17 45 27.69	2.1530	19 56 57.2	1.270
13	16 5 51.72	2.0798	19 11 6.8	3.132	13	17 47 36.90	2.1542	19 55 38.0	1.368
14	16 7 56.56	2.0816	19 14 12.1	3.045	14	17 49 46.19	2.1553	19 54 13.0	1.467
15	16 10 1.51	2.0834	19 17 12.2	2.958	15	17 51 55.54	2.1564	19 52 42.0	1.566
16	16 12 6.57	2.0853	19 20 7.0	2.869	16	17 54 4.96	2.1575	19 51 5.1	1.664
17	16 14 11.74	2.0871	19 22 56.5	2.781	17	17 56 14.44	2.1586	19 49 22.3	1.763
18	16 16 17.02	2.0889	19 25 40.7	2.693	18	17 58 23.99	2.1597	19 47 33.6	1.862
19	16 18 22.41	2.0908	19 28 19.6	2.603	19	18 0 33.60	2.1607	19 45 38.9	1.961
20	16 20 27.91	2.0925	19 30 53.1	2.513	20	18 2 43.27	2.1618	19 43 38.3	2.059
21	16 22 33.51	2.0943	19 33 21.2	2.424	21	18 4 53.01	2.1628	19 41 31.8	2.158
22	16 24 39.23	2.0962	19 35 44.0	2.334	22	18 7 2.80	2.1637	19 39 19.3	2.258
23	16 26 45.05	2.0978	19 38 1.3	2.243	23	18 9 12.65	2.1648	19 37 0.8	2.357
24	16 28 50.97	2.0996	S. 19 40 13.2	2.153	24	18 11 22.57	2.1658	S. 19 34 36.5	2.455

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 21.					MONDAY 23.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	18 11 22.57	2.1658	S. 19 34 36.5	2.455	0	19 56 7.05	2.1940	S. 15 43 33.6	7.111
1	18 13 32.54	2.1666	19 32 6.2	2.555	1	19 58 18.70	2.1943	15 36 24.2	7.202
2	18 15 42.56	2.1674	19 29 29.9	2.655	2	20 0 30.37	2.1947	15 29 9.4	7.293
3	18 17 52.63	2.1683	19 26 47.6	2.754	3	20 2 42.06	2.1950	15 21 49.1	7.383
4	18 20 2.76	2.1693	19 23 59.4	2.853	4	20 4 53.77	2.1953	15 14 23.4	7.473
5	18 22 12.94	2.1702	19 21 5.3	2.952	5	20 7 5.50	2.1958	15 6 52.3	7.563
6	18 24 23.18	2.1710	19 18 5.2	3.052	6	20 9 17.26	2.1962	14 59 15.8	7.653
7	18 26 33.46	2.1718	19 14 59.1	3.151	7	20 11 29.04	2.1966	14 51 34.0	7.742
8	18 28 43.79	2.1726	19 11 47.1	3.250	8	20 13 40.85	2.1970	14 43 46.8	7.830
9	18 30 54.17	2.1734	19 8 29.1	3.349	9	20 15 52.68	2.1973	14 35 54.4	7.918
10	18 33 4.60	2.1742	19 5 5.2	3.448	10	20 18 4.53	2.1977	14 27 56.7	8.006
11	18 35 15.07	2.1749	19 1 35.4	3.546	11	20 20 16.40	2.1980	14 19 53.7	8.093
12	18 37 25.59	2.1757	18 57 59.7	3.646	12	20 22 28.29	2.1984	14 11 45.5	8.179
13	18 39 36.15	2.1763	18 54 17.9	3.746	13	20 24 40.21	2.1988	14 3 32.2	8.265
14	18 41 46.75	2.1771	18 50 30.2	3.844	14	20 26 52.15	2.1993	13 55 13.7	8.351
15	18 43 57.40	2.1778	18 46 36.6	3.943	15	20 29 4.12	2.1997	13 46 50.1	8.436
16	18 46 8.08	2.1784	18 42 37.0	4.043	16	20 31 16.11	2.2001	13 38 21.4	8.521
17	18 48 18.81	2.1792	18 38 31.5	4.141	17	20 33 28.13	2.2006	13 29 47.6	8.604
18	18 50 29.58	2.1798	18 34 20.1	4.239	18	20 35 40.18	2.2010	13 21 8.9	8.688
19	18 52 40.38	2.1803	18 30 2.8	4.338	19	20 37 52.25	2.2013	13 12 25.1	8.772
20	18 54 51.22	2.1810	18 25 39.5	4.437	20	20 40 4.34	2.2018	13 3 36.3	8.853
21	18 57 2.10	2.1816	18 21 10.4	4.534	21	20 42 16.47	2.2023	12 54 42.7	8.934
22	18 59 13.01	2.1821	18 16 35.4	4.633	22	20 44 28.62	2.2027	12 45 44.2	9.016
23	19 1 23.95	2.1827	S. 18 11 54.5	4.731	23	20 46 40.79	2.2032	S. 12 36 40.8	9.098
SUNDAY 22.					TUESDAY 24.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	19 3 34.93	2.1833	S. 18 7 7.7	4.828	0	20 48 53.00	2.2038	S. 12 27 32.6	9.177
1	19 5 45.94	2.1838	18 2 15.1	4.926	1	20 51 5.24	2.2042	12 18 19.6	9.256
2	19 7 56.99	2.1844	17 57 16.6	5.024	2	20 53 17.50	2.2047	12 9 1.9	9.334
3	19 10 8.07	2.1848	17 52 12.2	5.122	3	20 55 29.80	2.2053	11 59 39.5	9.413
4	19 12 19.17	2.1853	17 47 2.0	5.218	4	20 57 42.13	2.2058	11 50 12.4	9.490
5	19 14 30.31	2.1859	17 41 46.0	5.315	5	20 59 54.49	2.2063	11 40 40.7	9.566
6	19 16 41.48	2.1864	17 36 24.2	5.412	6	21 2 6.88	2.2068	11 31 4.5	9.642
7	19 18 52.68	2.1869	17 30 56.6	5.508	7	21 4 19.31	2.2074	11 21 23.7	9.718
8	19 21 3.91	2.1873	17 25 23.2	5.605	8	21 6 31.77	2.2079	11 11 38.4	9.792
9	19 23 15.16	2.1878	17 19 44.0	5.701	9	21 8 44.26	2.2086	11 1 48.7	9.866
10	19 25 26.44	2.1883	17 13 59.1	5.797	10	21 10 56.80	2.2093	10 51 54.5	9.939
11	19 27 37.75	2.1888	17 8 8.4	5.893	11	21 13 9.37	2.2098	10 41 56.0	10.011
12	19 29 49.09	2.1892	17 2 11.9	5.988	12	21 15 21.98	2.2105	10 31 53.2	10.083
13	19 32 0.45	2.1896	16 56 9.8	6.083	13	21 17 34.63	2.2112	10 21 46.1	10.153
14	19 34 11.84	2.1900	16 50 1.9	6.178	14	21 19 47.32	2.2119	10 11 34.8	10.223
15	19 36 23.25	2.1904	16 43 48.4	6.273	15	21 22 0.06	2.2127	10 1 19.3	10.293
16	19 38 34.69	2.1908	16 37 29.2	6.368	16	21 24 12.84	2.2133	9 50 59.6	10.362
17	19 40 46.15	2.1913	16 31 4.3	6.462	17	21 26 25.66	2.2141	9 40 35.9	10.429
18	19 42 57.64	2.1917	16 24 33.8	6.555	18	21 28 38.53	2.2148	9 30 8.1	10.496
19	19 45 9.15	2.1920	16 17 57.7	6.648	19	21 30 51.44	2.2156	9 19 36.4	10.562
20	19 47 20.68	2.1924	16 11 16.0	6.742	20	21 33 4.40	2.2164	9 9 0.7	10.628
21	19 49 32.24	2.1928	16 4 28.7	6.834	21	21 35 17.41	2.2173	8 58 21.1	10.692
22	19 51 43.82	2.1932	15 57 35.9	6.927	22	21 37 30.47	2.2181	8 47 37.7	10.755
23	19 53 55.42	2.1936	15 50 37.5	7.019	23	21 39 43.58	2.2190	8 36 50.5	10.818
24	19 56 7.05	2.1940	S. 15 43 33.6	7.111	24	21 41 56.75	2.2199	S. 8 25 59.6	10.879

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 25.					FRIDAY 27.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	21 41 56.75	2.2199	S. 8 25 59.6	10.879	0	23 30 3.07	2.2950	N. 1 7 13.9	12.545
1	21 44 9.97	2.2208	8 15 5.0	10.940	1	23 32 20.90	2.2983	1 19 46.7	12.547
2	21 46 23.25	2.2218	8 4 6.8	11.000	2	23 34 38.87	2.3007	1 32 19.6	12.548
3	21 48 36.59	2.2228	7 53 5.0	11.059	3	23 36 56.98	2.3031	1 44 52.6	12.550
4	21 50 49.98	2.2238	7 41 59.7	11.117	4	23 39 15.24	2.3055	1 57 25.6	12.548
5	21 53 3.44	2.2248	7 30 51.0	11.173	5	23 41 33.64	2.3080	2 9 58.4	12.545
6	21 55 16.96	2.2258	7 19 38.9	11.229	6	23 43 52.20	2.3105	2 22 31.0	12.541
7	21 57 30.54	2.2268	7 8 23.5	11.284	7	23 46 10.90	2.3129	2 35 3.3	12.535
8	21 59 44.18	2.2279	6 57 4.8	11.339	8	23 48 29.75	2.3155	2 47 35.2	12.528
9	22 1 57.89	2.2291	6 45 42.8	11.392	9	23 50 48.76	2.3181	3 0 6.6	12.518
10	22 4 11.67	2.2303	6 34 17.7	11.443	10	23 53 7.92	2.3206	3 12 37.4	12.508
11	22 6 25.52	2.2313	6 22 49.6	11.494	11	23 55 27.23	2.3233	3 25 7.6	12.497
12	22 8 39.43	2.2325	6 11 18.4	11.544	12	23 57 46.71	2.3259	3 37 37.0	12.483
13	22 10 53.42	2.2338	5 59 44.3	11.593	13	0 0 6.34	2.3286	3 50 5.6	12.468
14	22 13 7.49	2.2352	5 48 7.2	11.642	14	0 2 26.14	2.3312	4 2 33.2	12.452
15	22 15 21.64	2.2364	5 36 27.3	11.688	15	0 4 46.09	2.3339	4 14 59.8	12.434
16	22 17 35.86	2.2377	5 24 44.7	11.733	16	0 7 6.21	2.3368	4 27 25.3	12.415
17	22 19 50.16	2.2390	5 12 59.4	11.778	17	0 9 26.50	2.3395	4 39 49.6	12.394
18	22 22 4.54	2.2404	5 1 11.4	11.821	18	0 11 46.95	2.3423	4 52 12.6	12.371
19	22 24 19.01	2.2418	4 49 20.9	11.863	19	0 14 7.57	2.3451	5 4 34.1	12.346
20	22 26 33.56	2.2433	4 37 27.8	11.905	20	0 16 28.36	2.3479	5 16 54.1	12.320
21	22 28 48.20	2.2448	4 25 32.3	11.944	21	0 18 49.32	2.3508	5 29 12.5	12.293
22	22 31 2.93	2.2462	4 13 34.5	11.983	22	0 21 10.45	2.3537	5 41 29.3	12.265
23	22 33 17.74	2.2477	S. 4 1 34.3	12.022	23	0 23 31.76	2.3566	N. 5 53 44.3	12.233
THURSDAY 26.					SATURDAY 28.				
0	22 35 32.65	2.2493	S. 3 49 31.9	12.058	0	0 25 53.24	2.3595	N. 6 5 57.3	12.201
1	22 37 47.66	2.2509	3 37 27.4	12.093	1	0 28 14.90	2.3624	6 18 8.4	12.168
2	22 40 2.76	2.2525	3 25 20.8	12.126	2	0 30 36.73	2.3654	6 30 17.4	12.133
3	22 42 17.96	2.2541	3 13 12.3	12.158	3	0 32 58.75	2.3684	6 42 24.3	12.096
4	22 44 33.25	2.2558	3 1 1.8	12.191	4	0 35 20.94	2.3713	6 54 28.9	12.057
5	22 46 48.65	2.2576	2 48 49.4	12.221	5	0 37 43.31	2.3743	7 6 31.1	12.017
6	22 49 4.16	2.2593	2 36 35.3	12.249	6	0 40 5.86	2.3773	7 18 30.9	11.976
7	22 51 19.77	2.2610	2 24 19.5	12.278	7	0 42 28.59	2.3804	7 30 28.2	11.933
8	22 53 35.48	2.2628	2 12 2.0	12.304	8	0 44 51.51	2.3835	7 42 22.8	11.888
9	22 55 51.31	2.2647	1 59 43.0	12.329	9	0 47 14.61	2.3865	7 54 14.7	11.841
10	22 58 7.24	2.2665	1 47 22.5	12.353	10	0 49 37.89	2.3895	8 6 3.7	11.793
11	23 0 23.29	2.2684	1 35 0.6	12.376	11	0 52 1.35	2.3926	8 17 49.8	11.743
12	23 2 39.45	2.2703	1 22 37.4	12.397	12	0 54 25.00	2.3957	8 29 32.9	11.693
13	23 4 55.73	2.2723	1 10 13.0	12.417	13	0 56 48.83	2.3988	8 41 12.9	11.639
14	23 7 12.13	2.2743	0 57 47.4	12.436	14	0 59 12.85	2.4019	8 52 49.6	11.585
15	23 9 28.65	2.2763	0 45 20.7	12.453	15	1 1 37.06	2.4050	9 4 23.1	11.529
16	23 11 45.29	2.2784	0 32 53.1	12.468	16	1 4 1.45	2.4081	9 15 53.1	11.471
17	23 14 2.06	2.2806	0 20 24.5	12.483	17	1 6 26.03	2.4112	9 27 19.6	11.412
18	23 16 18.96	2.2827	S. 0 7 55.1	12.496	18	1 8 50.79	2.4143	9 38 42.5	11.351
19	23 18 35.98	2.2848	N. 0 4 35.0	12.508	19	1 11 15.74	2.4174	9 50 1.7	11.289
20	23 20 53.13	2.2869	0 17 5.8	12.518	20	1 13 40.88	2.4205	10 1 17.2	11.226
21	23 23 10.41	2.2892	0 29 37.2	12.527	21	1 16 6.20	2.4236	10 12 28.8	11.160
22	23 25 27.83	2.2914	0 42 9.0	12.534	22	1 18 31.71	2.4268	10 23 36.4	11.093
23	23 27 45.38	2.2937	0 54 41.3	12.541	23	1 20 57.41	2.4298	10 34 40.0	11.025
24	23 30 3.07	2.2960	N. 1 7 13.9	12.545	24	1 23 23.29	2.4329	N. 10 45 39.4	10.955

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 29.					TUESDAY, OCTOBER 1.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	1 23 23.29	2.4329	N. 10 45 39.4	10.955	0	3 23 18.06	2.5478	N. 17 44 31.5	6.037
1	1 25 49.36	2.4360	10 56 34.6	10.884					
2	1 28 15.61	2.4391	11 7 25.5	10.811					
3	1 30 42.05	2.4423	11 18 11.9	10.736					
4	1 33 8.68	2.4453	11 28 53.8	10.660					
5	1 35 35.48	2.4483	11 39 31.1	10.582					
6	1 38 2.47	2.4513	11 50 3.7	10.503					
7	1 40 29.64	2.4544	12 0 31.5	10.423					
8	1 42 57.00	2.4574	12 10 54.5	10.342					
9	1 45 24.53	2.4603	12 21 12.5	10.258					
10	1 47 52.24	2.4633	12 31 25.5	10.174					
11	1 50 20.12	2.4662	12 41 33.4	10.088					
12	1 52 48.18	2.4692	12 51 36.0	9.999					
13	1 55 16.42	2.4721	13 1 33.3	9.910					
14	1 57 44.83	2.4750	13 11 25.2	9.820					
15	2 0 13.42	2.4778	13 21 11.7	9.728					
16	2 2 42.17	2.4806	13 30 52.6	9.635					
17	2 5 11.09	2.4834	13 40 27.9	9.541					
18	2 7 40.18	2.4863	13 49 57.5	9.445					
19	2 10 9.44	2.4890	13 59 21.3	9.348					
20	2 12 38.86	2.4917	14 8 39.2	9.249					
21	2 15 8.44	2.4943	14 17 51.2	9.150					
22	2 17 38.17	2.4969	14 26 57.2	9.048					
23	2 20 8.07	2.4996	N. 14 35 57.0	8.946					
MONDAY 30.					PHASES OF THE MOON.				
0	2 22 38.12	2.5021	N. 14 44 50.7	8.843					
1	2 25 8.32	2.5046	14 53 38.1	8.738					
2	2 27 38.67	2.5071	15 2 19.2	8.632					
3	2 30 9.17	2.5095	15 10 53.9	8.524					
4	2 32 39.81	2.5119	15 19 22.1	8.416					
5	2 35 10.60	2.5143	15 27 43.8	8.307					
6	2 37 41.52	2.5165	15 35 58.9	8.196					
7	2 40 12.58	2.5188	15 44 7.3	8.084					
8	2 42 43.77	2.5209	15 52 9.0	7.972					
9	2 45 15.09	2.5231	16 0 3.9	7.858					
10	2 47 46.54	2.5252	16 7 52.0	7.743					
11	2 50 18.11	2.5271	16 15 33.1	7.627					
12	2 52 49.79	2.5290	16 23 7.2	7.510					
13	2 55 21.59	2.5310	16 30 34.3	7.392					
14	2 57 53.51	2.5329	16 37 54.3	7.273					
15	3 0 25.54	2.5347	16 45 7.1	7.153					
16	3 2 57.68	2.5364	16 52 12.7	7.033					
17	3 5 29.91	2.5380	16 59 11.1	6.912					
18	3 8 2.24	2.5397	17 6 2.1	6.788					
19	3 10 34.67	2.5413	17 12 45.7	6.665					
20	3 13 7.19	2.5427	17 19 21.9	6.542					
21	3 15 39.79	2.5440	17 25 50.7	6.417					
22	3 18 12.47	2.5453	17 32 11.9	6.290					
23	3 20 45.23	2.5466	17 38 25.5	6.163					
24	3 23 18.06	2.5478	N. 17 44 31.5	6.037					

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	JUPITER W.	100 51 48	2178	102 40 49	2178	104 29 49	2179	106 18 49	2180
	SATURN W.	94 9 13	2169	95 58 27	2170	97 47 40	2170	99 36 52	2171
	Pollux E.	97 23 5	2252	95 35 55	2251	93 48 44	2252	92 1 34	2253
2	SATURN W.	108 42 12	2185	110 31 2	2189	112 19 47	2193	114 8 25	2197
	Fomalhaut W.	59 19 43	2221	60 53 43	2201	62 28 9	2284	64 2 57	2771
	α Pegasi W.	39 56 49	2566	41 36 30	2543	43 16 43	2524	44 57 23	2508
	Pollux E.	83 6 25	2267	81 19 37	2271	79 32 55	2276	77 46 20	2282
	SUN E.	130 39 11	2504	128 58 4	2508	127 17 2	2512	125 36 5	2515
3	Fomalhaut W.	72 0 36	2731	73 36 35	2728	75 12 38	2725	76 48 45	2724
	α Pegasi W.	53 25 18	2460	55 7 28	2455	56 49 44	2452	58 32 5	2450
	Pollux E.	68 55 45	2317	67 10 11	2326	65 24 49	2335	63 39 40	2345
	SUN E.	117 12 44	2539	115 32 25	2545	113 52 15	2551	112 12 13	2557
4	Fomalhaut W.	84 49 1	2738	86 24 50	2744	88 0 31	2750	89 36 4	2758
	α Pegasi W.	67 3 59	2455	68 46 16	2459	70 28 27	2462	72 10 33	2466
	Pollux E.	54 57 50	2404	53 14 20	2418	51 31 9	2433	49 48 20	2449
	SUN E.	103 54 24	2594	102 15 21	2602	100 36 29	2610	98 57 48	2618
5	Fomalhaut W.	97 30 53	2810	99 5 8	2824	100 39 5	2838	102 12 44	2853
	α Pegasi W.	80 39 18	2496	82 20 37	2503	84 1 45	2510	85 42 44	2518
	α Arietis W.	37 1 32	2484	38 43 8	2483	40 24 45	2482	42 6 24	2482
	SUN E.	90 47 18	2662	89 9 47	2671	87 32 28	2680	85 55 21	2689
6	α Pegasi W.	94 4 45	2562	95 44 32	2572	97 24 5	2582	99 3 25	2592
	α Arietis W.	50 34 12	2495	52 15 32	2500	53 56 45	2505	55 37 52	2510
	SUN E.	77 52 53	2736	76 17 1	2746	74 41 23	2755	73 5 56	2765
7	α Arietis W.	64 1 24	2542	65 41 39	2549	67 21 45	2556	69 1 41	2563
	Aldebaran W.	30 30 55	2505	32 12 1	2511	33 53 0	2517	35 33 50	2524
	SUN E.	65 11 52	2813	63 37 41	2823	62 3 43	2833	60 29 58	2842
8	α Arietis W.	77 18 47	2601	78 57 41	2609	80 36 23	2617	82 14 55	2626
	Aldebaran W.	43 55 34	2560	45 35 24	2568	47 15 3	2575	48 54 32	2583
	SUN E.	52 44 22	2892	51 11 53	2902	49 39 38	2913	48 7 35	2924
9	α Arietis W.	90 24 43	2668	92 2 6	2677	93 39 17	2686	95 16 17	2695
	Aldebaran W.	57 9 11	2624	58 47 34	2632	60 25 45	2640	62 3 45	2649
	SUN E.	40 30 41	2977	38 59 59	2988	37 29 31	2999	35 59 17	3011
10	α Arietis W.	103 18 12	2741	104 53 58	2750	106 29 31	2760	108 4 51	2770
	Aldebaran W.	70 10 56	2691	71 47 48	2699	73 24 29	2707	75 0 59	2716
	SUN E.	28 31 57	3076	27 3 18	3091	25 34 58	3109	24 6 58	3128
14	SUN W.	18 30 43	3426	19 52 30	3423	21 14 21	3421	22 36 14	3419
	JUPITER E.	84 19 36	2981	82 48 59	2989	81 18 33	2997	79 48 17	3005
	SATURN E.	90 34 4	2964	89 3 6	2972	87 32 18	2979	86 1 39	2987
15	SUN W.	29 25 45	3426	30 47 33	3429	32 9 17	3431	33 30 58	3434
	JUPITER E.	72 19 10	3040	70 49 47	3046	69 20 31	3052	67 51 23	3058

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	JUPITER	W.	108 7 46	2183	109 56 39	2186	111 45 28	2188	113 34 13	2189
	SATURN	W.	101 26 3	2173	103 15 11	2176	105 4 15	2178	106 53 16	2181
	Pollux	E.	90 14 26	2255	88 27 20	2258	86 40 18	2260	84 53 19	2263
2	SATURN	W.	115 56 57	2202	117 45 21	2207	119 33 38	2213	121 21 46	2220
	Fomalhaut	W.	65 38 3	2760	67 13 24	2750	68 48 57	2741	70 24 42	2735
	α Pegasi	W.	46 38 25	2494	48 19 47	2482	50 1 25	2472	51 43 16	2465
	Pollux	E.	75 59 54	2288	74 13 37	2294	72 27 29	2301	70 41 31	2309
	SUN	E.	123 55 13	2519	122 14 26	2523	120 33 45	2528	118 53 11	2533
3	Fomalhaut	W.	78 24 53	2725	80 1 0	2727	81 37 4	2729	83 13 5	2733
	α Pegasi	W.	60 14 28	2450	61 56 51	2450	63 39 15	2450	65 21 38	2452
	Pollux	E.	61 54 46	2355	60 10 7	2366	58 25 44	2378	56 41 38	2391
	SUN	E.	110 32 19	2565	108 52 36	2572	107 13 2	2579	105 33 38	2586
4	Fomalhaut	W.	91 11 27	2767	92 46 38	2777	94 21 37	2787	95 56 22	2798
	α Pegasi	W.	73 52 34	2471	75 34 27	2477	77 16 12	2483	78 57 49	2489
	Pollux	E.	48 5 54	2465	46 23 51	2483	44 42 12	2502	43 1 0	2522
	SUN	E.	97 19 18	2628	95 41 1	2636	94 2 55	2645	92 25 1	2653
5	Fomalhaut	W.	103 46 4	2869	105 19 3	2885	106 51 41	2903	108 23 56	2922
	α Pegasi	W.	87 23 32	2527	89 4 8	2535	90 44 32	2544	92 24 45	2554
	α Arietis	W.	43 48 3	2483	45 29 41	2485	47 11 15	2488	48 52 46	2491
	SUN	E.	84 18 26	2698	82 41 44	2708	81 5 15	2717	79 28 58	2726
6	α Pegasi	W.	100 42 31	2603	102 21 22	2614	103 59 59	2625	105 38 20	2636
	α Arietis	W.	57 18 52	2516	58 59 43	2522	60 40 25	2528	62 20 59	2535
	SUN	E.	71 30 42	2775	69 55 41	2784	68 20 52	2794	66 46 16	2804
7	α Arietis	W.	70 41 27	2570	72 21 3	2578	74 0 28	2585	75 39 43	2593
	Aldebaran	W.	37 14 31	2531	38 55 1	2538	40 35 22	2545	42 15 33	2552
	SUN	E.	58 56 25	2852	57 23 5	2862	55 49 58	2872	54 17 4	2882
8	α Arietis	W.	83 53 15	2634	85 31 24	2642	87 9 22	2651	88 47 8	2659
	Aldebaran	W.	50 33 50	2591	52 12 57	2599	53 51 52	2607	55 30 37	2615
	SUN	E.	46 35 46	2934	45 4 10	2944	43 32 47	2955	42 1 37	2966
9	α Arietis	W.	96 53 5	2704	98 29 40	2713	100 6 3	2722	101 42 14	2732
	Aldebaran	W.	63 41 34	2657	65 19 11	2666	66 56 37	2674	68 33 52	2682
	SUN	E.	34 29 18	3023	32 59 34	3036	31 30 5	3049	30 0 53	3062
10	α Arietis	W.	109 39 59	2780	111 14 53	2790	112 49 34	2800	114 24 2	2811
	Aldebaran	W.	76 37 17	2725	78 13 24	2734	79 49 19	2742	81 25 3	2751
	SUN	E.	22 39 22	3148	21 12 10	3169	19 45 24	3192	18 19 5	3216
14	SUN	W.	23 58 9	3418	25 20 5	3419	26 42 0	3421	28 3 54	3423
	JUPITER	E.	78 18 10	3012	76 48 12	3019	75 18 23	3026	73 48 42	3033
	SATURN	E.	84 31 10	2994	83 0 50	3001	81 30 38	3008	80 0 35	3015
15	SUN	W.	34 52 36	3438	36 14 9	3442	37 35 38	3445	38 57 4	3447
	JUPITER	E.	66 22 22	3064	64 53 29	3069	63 24 42	3075	61 56 2	3080

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
15	SATURN	E.	78 30 40	3022	77 0 54	3028	75 31 16	3034	74 1 45	3039
	α Aquilæ	E.	98 55 53	3123	97 34 3	3127	96 12 17	3131	94 50 35	3134
16	SUN	W.	40 18 27	3451	41 39 46	3454	43 1 1	3457	44 22 13	3459
	Spica	W.	10 46 45	3052	12 15 53	3056	13 44 57	3060	15 13 56	3063
	JUPITER	E.	60 27 28	3086	58 59 1	3090	57 30 39	3094	56 2 22	3098
	SATURN	E.	66 35 49	3065	65 6 57	3069	63 38 10	3073	62 9 28	3077
	α Aquilæ	E.	88 3 12	3156	86 41 59	3162	85 20 52	3167	83 59 51	3172
17	SUN	W.	51 7 40	3468	52 28 40	3468	53 49 40	3469	55 10 39	3469
	Spica	W.	22 37 57	3075	24 6 37	3076	25 35 16	3077	27 3 54	3077
	MARS	W.	3 53 26	3332	5 17 0	3333	6 40 33	3334	8 4 5	3335
	JUPITER	E.	48 42 6	3114	47 14 14	3117	45 46 25	3119	44 18 38	3121
	SATURN	E.	54 47 0	3091	53 18 40	3093	51 50 23	3095	50 22 8	3096
	α Aquilæ	E.	77 16 22	3503	75 56 1	3510	74 35 48	3517	73 15 43	3525
18	SUN	W.	61 55 42	3463	63 16 48	3460	64 37 57	3457	65 59 9	3454
	Spica	W.	34 27 3	3074	35 55 44	3072	37 24 27	3069	38 53 14	3067
	VENUS	W.	25 36 5	3537	26 55 48	3534	28 15 34	3531	29 35 24	3527
	MARS	W.	15 1 48	3331	16 25 24	3328	17 49 3	3325	19 12 45	3322
	JUPITER	E.	37 0 13	3127	35 32 36	3128	34 4 59	3128	32 37 23	3129
	SATURN	E.	43 1 9	3099	41 32 58	3098	40 4 47	3097	38 36 35	3096
	α Aquilæ	E.	66 37 27	3567	65 18 16	3577	63 59 17	3587	62 40 29	3598
19	SUN	W.	72 46 16	3431	74 7 58	3423	75 29 48	3416	76 51 46	3409
	Spica	W.	46 18 9	3047	47 47 24	3041	49 16 46	3034	50 46 16	3028
	VENUS	W.	36 15 41	3503	37 36 2	3497	38 56 29	3490	40 17 4	3482
	MARS	W.	26 12 15	3301	27 36 25	3295	29 0 42	3289	30 25 6	3282
	SATURN	E.	31 15 8	3088	29 46 44	3087	28 18 19	3086	26 49 51	3085
	α Aquilæ	E.	56 9 49	3669	54 52 29	3687	53 35 27	3706	52 18 45	3727
	α Pegasi	E.	102 1 31	3209	100 35 32	3202	99 9 25	3194	97 43 9	3187
20	SUN	W.	83 43 45	3366	85 6 40	3357	86 29 45	3346	87 53 3	3334
	Spica	W.	58 15 56	2989	59 46 22	2980	61 17 0	2970	62 47 50	2960
	VENUS	W.	47 2 15	3438	48 23 48	3428	49 45 32	3417	51 7 29	3406
	MARS	W.	37 29 19	3241	38 54 39	3231	40 20 11	3221	41 45 55	3211
	α Aquilæ	E.	46 1 42	3871	44 47 53	3911	43 34 44	3954	42 22 18	4004
	α Pegasi	E.	90 29 30	3146	89 2 16	3137	87 34 51	3127	86 7 14	3118
21	SUN	W.	94 52 59	3273	96 17 42	3259	97 42 42	3245	99 7 58	3230
	Spica	W.	70 25 21	2993	71 57 36	2990	73 30 6	2977	75 2 54	2963
	VENUS	W.	58 0 37	3343	59 23 59	3328	60 47 38	3313	62 11 34	3298
	MARS	W.	48 57 56	3151	50 25 4	3138	51 52 28	3124	53 20 10	3110
	Antares	W.	25 41 8	3054	27 10 14	3027	28 39 54	3002	30 10 6	2977
	α Pegasi	E.	78 46 12	3067	77 17 22	3056	75 48 18	3045	74 19 1	3034
22	SUN	W.	106 18 50	3151	107 45 58	3134	109 13 26	3117	110 41 15	3100
	Spica	W.	82 51 24	2791	84 26 4	2775	86 1 4	2759	87 36 25	2743
	VENUS	W.	69 15 44	3218	70 41 32	3201	72 7 40	3183	73 34 9	3165
	MARS	W.	60 43 5	3033	62 12 37	3016	63 42 30	2999	65 12 44	2982
	Antares	W.	37 48 24	2867	39 21 25	2846	40 54 53	2826	42 28 47	2806
	α Pegasi	E.	66 49 14	2979	65 18 35	2969	63 47 44	2958	62 16 39	2948

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
15	SATURN	E.	72 32 21	3044	71 3 3	3050	69 33 53	3055	68 4 48	3060
	<i>α</i> Aquilæ	E.	93 28 57	3438	92 7 23	3442	90 45 55	3446	89 24 31	3451
16	SUN	W.	45 43 23	3462	47 4 30	3463	48 25 35	3465	49 46 38	3466
	Spica	W.	16 42 51	3066	18 11 42	3069	19 40 29	3071	21 9 14	3073
	JUPITER	E.	54 34 10	3102	53 6 3	3105	51 38 0	3108	50 10 1	3111
	SATURN	E.	60 40 50	3084	59 12 17	3084	57 43 48	3087	56 15 22	3090
	<i>α</i> Aquilæ	E.	82 38 56	3478	81 18 7	3484	79 57 25	3490	78 36 50	3497
17	SUN	W.	56 31 38	3469	57 52 37	3468	59 13 37	3466	60 34 38	3464
	Spica	W.	28 32 32	3078	30 1 9	3078	31 29 46	3077	32 58 24	3076
	MARS	W.	9 27 36	3334	10 51 8	3334	12 14 40	3333	13 38 13	3332
	JUPITER	E.	42 50 54	3123	41 23 12	3124	39 55 31	3125	38 27 51	3126
	SATURN	E.	48 53 54	3098	47 25 42	3099	45 57 31	3099	44 29 20	3099
	<i>α</i> Aquilæ	E.	71 55 46	3533	70 35 57	3541	69 16 18	3549	67 56 48	3558
18	SUN	W.	67 20 25	3450	68 41 45	3446	70 3 10	3441	71 24 41	3437
	Spica	W.	40 22 4	3064	41 50 58	3060	43 19 56	3056	44 49 0	3052
	VENUS	W.	30 55 18	3524	32 15 16	3520	33 35 18	3515	34 55 26	3509
	MARS	W.	20 36 30	3319	22 0 19	3315	23 24 12	3311	24 48 11	3306
	JUPITER	E.	31 9 47	3129	29 42 12	3129	28 14 37	3129	26 47 3	3130
	SATURN	E.	37 8 21	3095	35 40 5	3094	34 11 48	3092	32 43 29	3091
	<i>α</i> Aquilæ	E.	61 21 53	3610	60 3 30	3623	58 45 21	3637	57 27 27	3652
19	SUN	W.	78 13 51	3402	79 36 5	3394	80 58 28	3385	82 21 1	3376
	Spica	W.	52 15 54	3022	53 45 40	3014	55 15 35	3006	56 45 40	2997
	VENUS	W.	41 37 48	3475	42 58 40	3466	44 19 41	3457	45 40 53	3448
	MARS	W.	31 49 39	3275	33 14 20	3267	34 39 10	3259	36 4 9	3250
	SATURN	E.	25 21 23	3085	23 52 55	3086	22 24 28	3086	20 56 1	3085
	<i>α</i> Aquilæ	E.	51 2 27	3750	49 46 33	3776	48 31 6	3804	47 16 8	3835
	<i>α</i> Pegasi	E.	96 16 45	3179	94 50 11	3171	93 23 28	3163	91 56 34	3155
20	SUN	W.	89 16 35	3323	90 40 20	3311	92 4 18	3299	93 28 31	3286
	Spica	W.	64 18 52	2950	65 50 8	2939	67 21 37	2927	68 53 21	2915
	VENUS	W.	52 29 39	3394	53 52 2	3382	55 14 39	3370	56 37 31	3357
	MARS	W.	43 11 51	3200	44 38 0	3188	46 4 24	3175	47 31 3	3163
	<i>α</i> Aquilæ	E.	41 10 42	4060	40 0 1	4122	38 50 21	4193	37 41 48	4268
	<i>α</i> Pegasi	E.	84 39 26	3108	83 11 26	3098	81 43 14	3088	80 14 49	3078
21	SUN	W.	100 33 32	3215	101 59 23	3199	103 25 33	3183	104 52 2	3167
	Spica	W.	76 36 0	2850	78 9 23	2836	79 43 4	2821	81 17 4	2806
	VENUS	W.	63 35 47	3283	65 0 18	3267	66 25 7	3251	67 50 16	3235
	MARS	W.	54 48 8	3095	56 16 24	3079	57 44 59	3064	59 13 52	3047
	Antares	W.	31 40 48	2953	33 12 0	2930	34 43 41	2908	36 15 49	2887
	<i>α</i> Pegasi	E.	72 49 31	3023	71 19 47	3012	69 49 50	3001	68 19 39	2990
22	SUN	W.	112 9 25	3082	113 37 57	3064	115 6 50	3046	116 36 6	3028
	Spica	W.	89 12 8	2727	90 48 12	2710	92 24 39	2693	94 1 28	2676
	VENUS	W.	75 1 0	3147	76 28 13	3129	77 55 48	3110	79 23 46	3091
	MARS	W.	66 43 19	2965	68 14 15	2948	69 45 34	2930	71 17 15	2911
	Antares	W.	44 3 8	2786	45 37 54	2766	47 13 7	2746	48 48 46	2726
	<i>α</i> Pegasi	E.	60 45 21	2958	59 13 50	2929	57 42 7	2920	56 10 13	2911

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
23	SUN	W.	118 5 44	3009	119 35 45	2990	121 6 11	2972	122 36 59	2953
	Spica	W.	95 38 40	2659	97 16 15	2641	98 54 14	2623	100 32 37	2605
	VENUS	W.	80 52 7	3072	82 20 51	3052	83 49 59	3033	85 19 31	3013
	MARS	W.	72 49 20	2893	74 21 48	2875	75 54 39	2856	77 27 54	2837
	Antares	W.	50 24 51	2707	52 1 22	2687	53 38 19	2667	55 15 43	2648
	JUPITER	W.	24 22 22	2744	25 58 3	2719	27 34 17	2696	29 11 2	2673
	SATURN	W.	18 39 57	2754	20 15 25	2726	21 51 30	2699	23 28 12	2673
	α Arietis	E.	97 19 1	2714	95 42 40	2697	94 5 56	2680	92 28 50	2662
24	Spica	W.	108 50 44	2515	110 31 37	2497	112 12 55	2478	113 54 39	2460
	VENUS	W.	92 53 23	2914	94 25 24	2894	95 57 51	2873	97 30 45	2853
	MARS	W.	85 20 20	2742	86 56 4	2723	88 32 14	2704	90 8 49	2685
	Antares	W.	63 29 19	2551	65 9 22	2532	66 49 51	2512	68 30 47	2493
	JUPITER	W.	37 22 10	2567	39 1 50	2547	40 41 56	2527	42 22 31	2508
	SATURN	W.	31 40 7	2556	33 20 3	2535	35 0 28	2514	36 41 23	2493
	α Arietis	E.	84 17 8	2572	82 37 34	2554	80 57 35	2536	79 17 12	2519
25	VENUS	W.	105 21 33	2756	106 56 58	2737	108 32 49	2718	110 9 5	2700
	MARS	W.	98 18 5	2591	99 57 12	2573	101 36 44	2556	103 16 40	2538
	Antares	W.	77 2 2	2402	78 45 34	2384	80 29 32	2367	82 13 55	2350
	JUPITER	W.	50 52 11	2413	52 35 27	2396	54 19 8	2378	56 3 15	2360
	SATURN	W.	45 12 56	2396	46 56 36	2378	48 40 42	2359	50 25 15	2342
	α Arietis	E.	70 49 17	2435	69 6 31	2419	67 23 23	2403	65 39 53	2388
	Aldebaran	E.	103 53 18	2380	102 9 14	2362	100 24 44	2344	98 39 48	2327
26	Antares	W.	91 1 52	2270	92 48 36	2255	94 35 42	2241	96 23 9	2227
	JUPITER	W.	64 50 0	2279	66 36 31	2263	68 23 25	2249	70 10 40	2235
	SATURN	W.	59 14 12	2260	61 1 10	2245	62 48 31	2230	64 36 14	2216
	α Arietis	E.	56 57 15	2323	55 11 48	2312	53 26 7	2302	51 40 11	2293
	Aldebaran	E.	89 49 10	2248	88 1 53	2233	86 14 15	2219	84 26 15	2205
27	JUPITER	W.	79 11 55	2172	81 1 5	2161	82 50 31	2151	84 40 12	2142
	SATURN	W.	73 39 51	2153	75 29 30	2142	77 19 25	2132	79 9 35	2123
	α Aquilæ	W.	56 15 3	2731	57 51 2	2698	59 27 45	2667	61 5 10	2638
	Aldebaran	E.	75 21 21	2143	73 31 28	2133	71 41 19	2123	69 50 55	2114
	Pollux	E.	117 29 2	2245	115 41 42	2231	113 54 1	2218	112 6 1	2206
28	JUPITER	W.	93 51 54	2105	95 42 46	2099	97 33 47	2094	99 24 55	2090
	SATURN	W.	88 23 45	2085	90 15 8	2079	92 6 39	2074	93 58 18	2070
	α Aquilæ	W.	69 21 2	2528	71 1 36	2512	72 42 33	2498	74 23 50	2486
	Aldebaran	E.	60 35 43	2078	58 44 9	2073	56 52 27	2068	55 0 38	2064
	Pollux	E.	103 1 56	2159	101 12 27	2153	99 22 48	2147	97 33 0	2142
29	JUPITER	W.	108 41 45	2081	110 33 14	2082	112 24 42	2083	114 16 7	2085
	SATURN	W.	103 17 44	2061	105 9 44	2061	107 1 43	2062	108 53 41	2063
	α Pegasi	W.	35 10 26	2529	36 50 59	2490	38 32 26	2455	40 14 42	2425
	Aldebaran	E.	45 40 31	2057	43 48 25	2058	41 56 21	2060	40 4 19	2063
	Pollux	E.	88 22 35	2130	86 32 22	2131	84 42 9	2132	82 51 58	2134
30	α Pegasi	W.	48 54 38	2336	50 39 45	2326	52 25 6	2319	54 10 37	2314
	Pollux	E.	73 42 16	2157	71 52 43	2164	70 3 21	2172	68 14 11	2181
	Regulus	E.	110 14 54	2083	108 23 28	2087	106 32 9	2092	104 40 58	2098

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
23	SUN	W.	124 8 12	2934	125 39 48	2914	127 11 49	2895	128 44 14	2876
	Spica	W.	102 11 25	2588	103 50 37	2569	105 30 14	2551	107 10 16	2533
	VENUS	W.	86 49 28	2993	88 19 49	2973	89 50 35	2953	91 21 46	2933
	MARS	W.	79 1 34	2818	80 35 38	2799	82 10 7	2780	83 45 1	2761
	Antares	W.	56 53 33	2628	58 31 50	2609	60 10 33	2589	61 49 43	2570
	JUPITER	W.	30 48 18	2652	32 26 3	2630	34 4 16	2609	35 42 59	2588
	SATURN	W.	25 5 28	2647	26 43 20	2622	28 21 45	2599	30 0 41	2577
	α Arietis	E.	90 51 19	2643	89 13 23	2625	87 35 2	2607	85 56 17	2590
24	Spica	W.	115 36 48	2442	117 19 23	2424	119 2 23	2406	120 45 49	2388
	VENUS	W.	99 4 4	2834	100 37 48	2815	102 11 57	2795	103 46 32	2775
	MARS	W.	91 45 49	2666	93 23 15	2647	95 1 6	2628	96 39 23	2610
	Antares	W.	70 12 10	2475	71 53 59	2456	73 36 14	2438	75 18 55	2420
	JUPITER	W.	44 3 33	2489	45 45 2	2470	47 26 58	2451	49 9 22	2432
	SATURN	W.	38 22 46	2473	40 4 37	2453	41 46 56	2434	43 29 43	2415
	α Arietis	E.	77 36 25	2502	75 55 13	2485	74 13 38	2468	72 31 39	2451
25	VENUS	W.	111 45 46	2682	113 22 50	2665	115 0 16	2647	116 38 7	2638
	MARS	W.	104 57 1	2520	106 37 46	2503	108 18 55	2487	110 0 27	2470
	Antares	W.	83 58 42	2333	85 43 54	2316	87 29 30	2300	89 15 30	2285
	JUPITER	W.	57 47 48	2343	59 32 45	2326	61 18 6	2310	63 3 51	2294
	SATURN	W.	52 10 13	2325	53 55 36	2308	55 41 24	2291	57 27 36	2275
	α Arietis	E.	63 56 1	2374	62 11 48	2360	60 27 16	2347	58 42 25	2335
	Aldebaran	E.	96 54 28	2311	95 8 44	2294	93 22 36	2278	91 36 4	2263
26	Antares	W.	98 10 56	2214	99 59 3	2202	101 47 28	2190	103 36 11	2178
	JUPITER	W.	71 58 16	2221	73 46 12	2208	75 34 28	2196	77 23 2	2184
	SATURN	W.	66 24 18	2202	68 12 43	2189	70 1 27	2177	71 50 30	2165
	α Arietis	E.	49 54 0	2284	48 7 37	2277	46 21 5	2271	44 34 23	2266
	Aldebaran	E.	82 37 55	2192	80 49 15	2179	79 0 15	2167	77 10 57	2155
27	JUPITER	W.	86 30 8	2133	88 20 17	2125	90 10 38	2118	92 1 11	2111
	SATURN	W.	81 0 0	2114	82 50 38	2105	84 41 29	2098	86 32 32	2091
	α Aquilæ	W.	62 43 14	2611	64 21 54	2586	66 1 7	2564	67 40 51	2545
	Aldebaran	E.	68 0 17	2105	66 9 26	2097	64 18 22	2090	62 27 7	2084
	Pollux	E.	110 17 43	2195	108 29 8	2185	106 40 18	2176	104 51 13	2167
28	JUPITER	W.	101 16 10	2087	103 7 29	2085	104 58 52	2083	106 50 18	2082
	SATURN	W.	95 50 3	2067	97 41 53	2064	99 33 47	2062	101 25 45	2061
	α Aquilæ	W.	76 5 24	2475	77 47 12	2466	79 29 13	2459	81 11 25	2453
	Aldebaran	E.	53 8 43	2061	51 16 43	2059	49 24 41	2058	47 32 37	2057
	Pollux	E.	95 43 5	2138	93 53 4	2134	92 2 57	2132	90 12 47	2131
29	JUPITER	W.	116 7 30	2086	117 58 50	2090	119 50 5	2095	121 41 14	2100
	SATURN	W.	110 45 37	2066	112 37 29	2069	114 29 17	2073	116 20 59	2077
	α Pegasi	W.	41 57 41	2401	43 41 15	2380	45 25 19	2362	47 9 48	2348
	Aldebaran	E.	38 12 23	2066	36 20 32	2070	34 28 47	2075	32 37 10	2082
	Pollux	E.	81 1 50	2137	79 11 47	2140	77 21 49	2145	75 31 58	2151
30	α Pegasi	W.	55 56 16	2311	57 42 0	2309	59 27 46	2309	61 13 33	2310
	Pollux	E.	66 25 15	2191	64 36 34	2202	62 48 8	2213	61 0 0	2225
	Regulus	E.	102 49 57	2105	100 59 5	2112	99 8 24	2119	97 17 54	2128

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.		Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.					
		h m s	s	° ' "	"	' "	s	m s	s		
Tues.	1	12 27 53.32	9.046	S. 3 0 51.5	-58.27	16 0.03	64.25	10 10.45	0.807		
Wed.	2	12 31 30.60	9.060	3 24 9.1	58.19	16 0.30	64.29	10 29.68	0.794		
Thur.	3	12 35 8.20	9.074	3 47 24.6	58.10	16 0.58	64.34	10 48.58	0.780		
Frid.	4	12 38 46.13	9.089	4 10 37.6	-57.99	16 0.85	64.39	11 7.14	0.766		
Sat.	5	12 42 24.44	9.104	4 33 47.8	57.86	16 1.13	64.44	11 25.35	0.750		
SUN.	6	12 46 3.12	9.120	4 56 54.7	57.71	16 1.40	64.49	11 43.17	0.734		
Mon.	7	12 49 42.19	9.137	5 19 58.0	-57.55	16 1.68	64.55	12 0.60	0.717		
Tues.	8	12 53 21.68	9.155	5 42 57.3	57.38	16 1.95	64.61	12 17.61	0.700		
Wed.	9	12 57 1.62	9.173	6 5 52.2	57.20	16 2.23	64.68	12 34.18	0.681		
Thur.	10	13 0 42.00	9.192	6 28 42.5	-56.99	16 2.51	64.75	12 50.31	0.662		
Frid.	11	13 4 22.85	9.212	6 51 27.6	56.76	16 2.79	64.82	13 5.97	0.642		
Sat.	12	13 8 4.19	9.232	7 14 7.0	56.52	16 3.07	64.89	13 21.14	0.622		
SUN.	13	13 11 46.02	9.253	7 36 40.6	-56.26	16 3.34	64.96	13 35.82	0.601		
Mon.	14	13 15 28.36	9.275	7 59 8.0	56.00	16 3.62	65.04	13 50.00	0.579		
Tues.	15	13 19 11.24	9.297	8 21 28.6	55.71	16 3.89	65.12	14 3.63	0.557		
Wed.	16	13 22 54.66	9.320	8 43 42.1	-55.41	16 4.17	65.20	14 16.73	0.534		
Thur.	17	13 26 38.64	9.344	9 5 48.2	55.09	16 4.44	65.29	14 29.27	0.510		
Frid.	18	13 30 23.19	9.368	9 27 46.4	54.75	16 4.71	65.37	14 41.23	0.486		
Sat.	19	13 34 8.34	9.393	9 49 36.3	-54.40	16 4.98	65.46	14 52.61	0.461		
SUN.	20	13 37 54.10	9.419	10 11 17.5	54.03	16 5.25	65.55	15 3.37	0.436		
Mon.	21	13 41 40.47	9.445	10 32 49.8	53.65	16 5.52	65.65	15 13.53	0.410		
Tues.	22	13 45 27.48	9.472	10 54 12.5	-53.25	16 5.79	65.74	15 23.05	0.383		
Wed.	23	13 49 15.15	9.500	11 15 25.5	52.83	16 6.06	65.84	15 31.92	0.355		
Thur.	24	13 53 3.48	9.528	11 36 28.3	52.39	16 6.33	65.94	15 40.11	0.327		
Frid.	25	13 56 52.49	9.557	11 57 20.4	-51.94	16 6.59	66.05	15 47.63	0.298		
Sat.	26	14 0 42.20	9.586	12 18 1.6	51.48	16 6.85	66.15	15 54.44	0.269		
SUN.	27	14 4 32.63	9.616	12 38 31.4	50.99	16 7.11	66.26	16 0.54	0.238		
Mon.	28	14 8 23.80	9.647	12 58 49.4	-50.49	16 7.37	66.36	16 5.91	0.207		
Tues.	29	14 12 15.74	9.680	13 18 55.4	49.97	16 7.62	66.47	16 10.51	0.175		
Wed.	30	14 16 8.46	9.713	13 38 48.9	49.44	16 7.88	66.58	16 14.34	0.143		
Thur.	31	14 20 1.96	9.746	13 58 29.4	48.91	16 8.13	66.69	16 17.39	0.110		
Frid.	32	14 23 56.27	9.780	S. 14 17 56.6	-48.35	16 8.38	66.80	16 19.63	0.076		

NOTE.—The mean time of semidiameter passing may be found by subtracting 0.18 from the sidereal time.

The sign — prefixed to the hourly change of declination indicates that south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ' "	"	m s	s	h m s
Tues.	1	12 27 54.86	+9.049	S. 3 1 1.4	-58.29	10 10.58	+0.807	12 38 5.45
Wed.	2	12 31 32.19	9.062	3 24 19.3	58.20	10 29.81	0.794	12 42 2.00
Thur.	3	12 35 9.84	9.076	3 47 35.1	58.11	10 48.71	0.780	12 45 58.55
Frid.	4	12 38 47.82	+9.091	4 10 48.4	-58.00	11 7.28	+0.766	12 49 55.10
Sat.	5	12 42 26.17	9.106	4 33 58.8	57.87	11 25.49	0.750	12 53 51.66
SUN.	6	12 46 4.90	9.122	4 57 6.0	57.72	11 43.31	0.734	12 57 48.21
Mon.	7	12 49 44.02	+9.139	5 20 9.5	-57.56	12 0.74	+0.717	13 1 44.76
Tues.	8	12 53 23.56	9.157	5 43 9.1	57.38	12 17.75	0.700	13 5 41.31
Wed.	9	12 57 3.54	9.175	6 6 4.2	57.20	12 34.32	0.681	13 9 37.86
Thur.	10	13 0 43.97	+9.194	6 28 54.7	-57.00	12 50.45	+0.662	13 13 34.42
Frid.	11	13 4 24.86	9.214	6 51 40.0	56.77	13 6.11	0.642	13 17 30.97
Sat.	12	13 8 6.24	9.234	7 14 19.6	56.53	13 21.28	0.622	13 21 27.52
SUN.	13	13 11 48.11	+9.255	7 36 53.4	-56.28	13 35.96	+0.601	13 25 24.07
Mon.	14	13 15 30.50	9.277	7 59 20.9	56.02	13 50.13	0.579	13 29 20.63
Tues.	15	13 19 13.42	9.299	8 21 41.7	55.72	14 3.76	0.557	13 33 17.18
Wed.	16	13 22 56.88	+9.322	8 43 55.3	-55.42	14 16.86	+0.534	13 37 13.73
Thur.	17	13 26 40.90	9.346	9 6 1.5	55.09	14 29.39	0.510	13 41 10.28
Frid.	18	13 30 25.49	9.370	9 27 59.8	54.75	14 41.35	0.486	13 45 6.84
Sat.	19	13 34 10.67	+9.395	9 49 49.8	-54.40	14 52.72	+0.461	13 49 3.39
SUN.	20	13 37 56.46	9.421	10 11 31.1	54.03	15 3.48	0.436	13 52 59.94
Mon.	21	13 41 42.86	9.447	10 33 3.4	53.65	15 13.63	0.410	13 56 56.50
Tues.	22	13 45 29.90	+9.474	10 54 26.2	-53.25	15 23.15	+0.383	14 0 53.05
Wed.	23	13 49 17.60	9.501	11 15 39.2	52.83	15 32.01	0.355	14 4 49.60
Thur.	24	13 53 5.96	9.529	11 36 42.0	52.39	15 40.20	0.327	14 8 46.16
Frid.	25	13 56 55.00	+9.558	11 57 34.1	-51.94	15 47.71	+0.298	14 12 42.71
Sat.	26	14 0 44.74	9.588	12 18 15.2	51.48	15 54.52	0.269	14 16 39.26
SUN.	27	14 4 35.20	9.618	12 38 45.0	51.00	16 0.61	0.238	14 20 35.82
Mon.	28	14 8 26.40	+9.649	12 59 3.0	-50.50	16 5.97	+0.207	14 24 32.37
Tues.	29	14 12 18.36	9.681	13 19 8.9	49.98	16 10.56	0.175	14 28 28.92
Wed.	30	14 16 11.10	9.714	13 39 2.3	49.45	16 14.38	0.143	14 32 25.48
Thur.	31	14 20 4.62	9.747	13 58 42.7	48.91	16 17.42	0.110	14 36 22.03
Frid.	32	14 23 58.94	+9.781	S. 14 18 9.8	-48.34	16 19.65	+0.076	14 40 18.59

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign — prefixed to the hourly change of declination indicates that south declinations are increasing.

Diff. for 1 Hour,
+9^s.8565.
(Table III.)

AT GREENWICH MEAN NOON.										
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.		
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.					
		λ	λ'							
		$^{\circ}$ $'$ $''$	$'$ $''$	$''$	$''$			h m s		
1	274	187 36 20.0	35 30.4	147.56	— 0.36	0.0003308	—51.1	11 20 2.84		
2	275	188 35 22.4	34 32.6	147.65	0.51	0.0002081	51.0	11 16 6.93		
3	276	189 34 27.0	33 37.2	147.74	0.63	0.0000856	51.0	11 12 11.03		
4	277	190 33 34.0	32 44.1	147.84	— 0.75	9.9999631	—51.0	11 8 15.12		
5	278	191 32 43.3	31 53.3	147.94	0.84	9.9998407	51.0	11 4 19.21		
6	279	192 31 55.0	31 4.9	148.04	0.89	9.9997182	51.1	11 0 23.31		
7	280	193 31 9.0	30 18.9	148.13	— 0.91	9.9995955	—51.2	10 56 27.40		
8	281	194 30 25.3	29 35.1	148.23	0.91	9.9994725	51.3	10 52 31.50		
9	282	195 29 43.9	28 53.6	148.32	0.86	9.9993492	51.4	10 48 35.59		
10	283	196 29 4.6	28 14.2	148.41	— 0.81	9.9992255	—51.5	10 44 39.68		
11	284	197 28 27.6	27 37.1	148.50	0.74	9.9991015	51.7	10 40 43.78		
12	285	198 27 52.6	27 2.0	148.59	0.62	9.9989771	51.9	10 36 47.87		
13	286	199 27 19.6	26 29.0	148.67	— 0.52	9.9988524	—52.0	10 32 51.96		
14	287	200 26 48.7	25 58.0	148.75	0.40	9.9987275	52.1	10 28 56.06		
15	288	201 26 19.8	25 28.9	148.83	0.29	9.9986024	52.1	10 25 0.15		
16	289	202 25 52.7	25 1.7	148.91	— 0.16	9.9984771	—52.2	10 21 4.24		
17	290	203 25 27.4	24 36.4	148.99	— 0.04	9.9983519	52.2	10 17 8.34		
18	291	204 25 4.0	24 12.8	149.07	+ 0.04	9.9982267	52.1	10 13 12.43		
19	292	205 24 42.4	23 51.1	149.14	+ 0.12	9.9981018	—52.0	10 9 16.52		
20	293	206 24 22.5	23 31.2	149.21	0.16	9.9979773	51.8	10 5 20.61		
21	294	207 24 4.4	23 12.9	149.28	0.17	9.9978532	51.6	10 1 24.71		
22	295	208 23 47.9	22 56.4	149.35	+ 0.15	9.9977298	—51.3	9 57 28.80		
23	296	209 23 33.2	22 41.5	149.42	0.10	9.9976072	50.9	9 53 32.89		
24	297	210 23 20.2	22 28.4	149.50	+ 0.03	9.9974857	50.4	9 49 36.98		
25	298	211 23 8.9	22 17.0	149.57	— 0.07	9.9973653	—49.9	9 45 41.08		
26	299	212 22 59.4	22 7.5	149.64	0.21	9.9972462	49.3	9 41 45.17		
27	300	213 22 51.8	21 59.7	149.72	0.34	9.9971285	48.7	9 37 49.26		
28	301	214 22 46.2	21 54.0	149.80	— 0.50	9.9970123	—48.1	9 33 53.35		
29	302	215 22 42.4	21 50.2	149.89	0.64	9.9968976	47.5	9 29 57.44		
30	303	216 22 40.8	21 48.4	149.97	0.77	9.9967845	46.9	9 26 1.54		
31	304	217 22 41.3	21 48.8	150.06	0.90	9.9966727	46.3	9 22 5.63		
32	305	218 22 43.9	21 51.2	150.15	— 0.99	9.9965623	—45.7	9 18 9.72		
NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0 ^d .0 of the Besselian fictitious year.									Diff. for 1 Hour, —9 ^s .8296. (Table II.)	

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMI- DIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	
	' "	' "	' "	"	' "	"	h m	m	
1	16 29.6	16 25.7	60 25.4	- 1.08	60 10.9	- 1.31	15 21.9	+ 2.49	18.6
2	16 21.0	16 15.9	59 53.8	1.50	59 34.9	1.64	16 21.5	2.46	19.6
3	16 10.3	16 4.5	59 14.4	1.74	58 53.1	1.80	17 19.6	2.37	20.6
4	15 58.5	15 52.6	58 31.3	- 1.83	58 9.4	- 1.82	18 15.2	+ 2.26	21.6
5	15 46.6	15 40.9	57 47.8	1.78	57 26.7	1.73	19 7.8	2.13	22.6
6	15 35.4	15 30.1	57 6.3	1.66	56 46.8	1.58	19 57.5	2.01	23.6
7	15 25.1	15 20.3	56 28.2	- 1.50	56 10.8	- 1.41	20 44.6	+ 1.92	24.6
8	15 15.8	15 11.7	55 54.4	1.32	55 39.1	1.23	21 29.7	1.85	25.6
9	15 7.8	15 4.2	55 24.8	1.14	55 11.6	1.06	22 13.7	1.82	26.6
10	15 0.8	14 57.8	54 59.4	- 0.97	54 48.3	- 0.88	22 57.0	+ 1.81	27.6
11	14 55.0	14 52.6	54 38.1	0.80	54 29.0	0.71	23 40.5	1.82	28.6
12	14 50.4	14 48.5	54 20.9	0.63	54 14.0	0.53	δ		0.0
13	14 46.9	14 45.7	54 8.2	- 0.43	54 3.7	- 0.32	0 24.5	+ 1.85	1.0
14	14 44.8	14 44.3	54 0.5	- 0.20	53 58.8	- 0.08	1 9.5	1.89	2.0
15	14 44.3	14 44.7	53 58.6	+ 0.05	54 0.2	+ 0.20	1 55.5	1.94	3.0
16	14 45.6	14 47.1	54 3.5	+ 0.36	54 8.8	+ 0.53	2 42.6	+ 1.98	4.0
17	14 49.1	14 51.7	54 16.2	0.70	54 25.7	0.88	3 30.6	2.01	5.0
18	14 54.9	14 58.7	54 37.4	1.07	54 51.4	1.27	4 19.1	2.03	6.0
19	15 3.2	15 8.2	55 7.9	+ 1.46	55 26.5	+ 1.64	5 7.8	+ 2.04	7.0
20	15 13.9	15 20.2	55 47.4	1.83	56 10.4	2.00	5 56.7	2.04	8.0
21	15 27.0	15 34.2	56 35.3	2.15	57 2.0	2.27	6 45.6	2.04	9.0
22	15 41.8	15 49.7	57 29.9	+ 2.37	57 58.8	+ 2.43	7 34.8	+ 2.06	10.0
23	15 57.7	16 5.6	58 28.1	2.43	58 57.3	2.39	8 24.8	2.11	11.0
24	16 13.3	16 20.6	59 25.6	2.30	59 52.4	2.14	9 16.1	2.18	12.0
25	16 27.3	16 33.1	60 16.9	+ 1.92	60 38.4	+ 1.64	10 9.4	+ 2.27	13.0
26	16 38.0	16 41.7	60 56.2	1.31	61 9.8	0.93	11 5.3	2.39	14.0
27	16 44.1	16 45.2	61 18.6	+ 0.53	61 22.5	+ 0.11	12 4.0	2.50	15.0
28	16 44.8	16 43.1	61 21.3	- 0.31	61 15.1	- 0.71	13 5.0	+ 2.57	16.0
29	16 40.2	16 36.0	61 4.2	1.09	60 49.0	1.43	14 7.0	2.57	17.0
30	16 30.9	16 24.9	60 30.1	1.70	60 8.1	1.93	15 8.3	2.51	18.0
31	16 18.3	16 11.2	59 43.9	2.09	59 17.9	2.20	16 7.1	2.38	19.0
32	16 3.9	15 56.5	58 51.0	- 2.26	58 23.7	- 2.27	17 2.5	+ 2.23	20.0

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 1.					THURSDAY 3.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	3 23 18.06	2.5478	N.17 44 31.5	6.037	0	5 25 25.56	2.5084	N.20 0 3.9	0.424
1	3 25 50.96	2.5489	17 50 29.9	5.909	1	5 27 55.98	2.5056	19 59 34.5	0.555
2	3 28 23.93	2.5500	17 56 20.6	5.780	2	5 30 26.23	2.5028	19 58 57.3	0.686
3	3 30 56.96	2.5509	18 2 3.5	5.651	3	5 32 56.31	2.4998	19 58 12.2	0.817
4	3 33 30.04	2.5518	18 7 38.7	5.522	4	5 35 26.20	2.4967	19 57 19.3	0.947
5	3 36 3.17	2.5526	18 13 6.1	5.391	5	5 37 55.91	2.4936	19 56 18.6	1.077
6	3 38 36.35	2.5533	18 18 25.6	5.260	6	5 40 25.43	2.4904	19 55 10.1	1.207
7	3 41 9.57	2.5540	18 23 37.3	5.128	7	5 42 54.76	2.4872	19 53 53.8	1.335
8	3 43 42.83	2.5546	18 28 41.0	4.996	8	5 45 23.89	2.4838	19 52 29.9	1.463
9	3 46 16.12	2.5551	18 33 36.8	4.863	9	5 47 52.81	2.4803	19 50 58.3	1.590
10	3 48 49.44	2.5555	18 38 24.6	4.730	10	5 50 21.53	2.4769	19 49 19.1	1.717
11	3 51 22.78	2.5558	18 43 4.4	4.596	11	5 52 50.04	2.4734	19 47 32.3	1.843
12	3 53 56.13	2.5560	18 47 36.1	4.462	12	5 55 18.34	2.4698	19 45 37.9	1.968
13	3 56 29.50	2.5562	18 51 59.8	4.328	13	5 57 46.42	2.4662	19 43 36.1	2.093
14	3 59 2.88	2.5563	18 56 15.5	4.194	14	6 0 14.28	2.4625	19 41 26.8	2.217
15	4 1 36.26	2.5563	19 0 23.1	4.059	15	6 2 41.92	2.4588	19 39 10.1	2.340
16	4 4 9.64	2.5562	19 4 22.6	3.923	16	6 5 9.33	2.4549	19 36 46.0	2.463
17	4 6 43.01	2.5560	19 8 13.9	3.788	17	6 7 36.51	2.4510	19 34 14.6	2.584
18	4 9 16.36	2.5558	19 11 57.1	3.652	18	6 10 3.45	2.4471	19 31 35.9	2.706
19	4 11 49.70	2.5555	19 15 32.1	3.515	19	6 12 30.16	2.4432	19 28 49.9	2.826
20	4 14 23.02	2.5551	19 18 58.9	3.379	20	6 14 56.63	2.4392	19 25 56.8	2.945
21	4 16 56.31	2.5545	19 22 17.6	3.243	21	6 17 22.86	2.4351	19 22 56.5	3.064
22	4 19 29.56	2.5539	19 25 28.0	3.106	22	6 19 48.84	2.4310	19 19 49.1	3.182
23	4 22 2.78	2.5532	N.19 28 30.3	2.969	23	6 22 14.58	2.4269	N.19 16 34.7	3.298
WEDNESDAY 2.					FRIDAY 4.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	4 24 35.95	2.5524	N.19 31 24.3	2.832	0	6 24 40.07	2.4227	N.19 13 13.3	3.415
1	4 27 9.07	2.5516	19 34 10.1	2.695	1	6 27 5.30	2.4183	19 9 44.9	3.531
2	4 29 42.14	2.5507	19 36 47.7	2.558	2	6 29 30.27	2.4140	19 6 9.6	3.645
3	4 32 15.15	2.5496	19 39 17.0	2.420	3	6 31 54.98	2.4098	19 2 27.5	3.758
4	4 34 48.09	2.5484	19 41 38.1	2.283	4	6 34 19.44	2.4054	18 58 38.6	3.872
5	4 37 20.96	2.5473	19 43 51.0	2.147	5	6 36 43.63	2.4010	18 54 42.9	3.983
6	4 39 53.76	2.5460	19 45 55.7	2.010	6	6 39 7.56	2.3966	18 50 40.6	4.094
7	4 42 26.48	2.5446	19 47 52.2	1.873	7	6 41 31.22	2.3921	18 46 31.6	4.205
8	4 44 59.11	2.5432	19 49 40.4	1.735	8	6 43 54.61	2.3876	18 42 16.0	4.314
9	4 47 31.66	2.5417	19 51 20.4	1.598	9	6 46 17.73	2.3830	18 37 53.9	4.422
10	4 50 4.11	2.5400	19 52 52.2	1.462	10	6 48 40.57	2.3784	18 33 25.3	4.530
11	4 52 36.46	2.5383	19 54 15.8	1.325	11	6 51 3.14	2.3738	18 28 50.3	4.637
12	4 55 8.70	2.5364	19 55 31.2	1.189	12	6 53 25.43	2.3692	18 24 8.9	4.743
13	4 57 40.83	2.5346	19 56 38.5	1.053	13	6 55 47.45	2.3646	18 19 21.2	4.847
14	5 0 12.85	2.5326	19 57 37.6	0.918	14	6 58 9.18	2.3598	18 14 27.3	4.950
15	5 2 44.74	2.5305	19 58 28.6	0.782	15	7 0 30.63	2.3552	18 9 27.2	5.053
16	5 5 16.51	2.5284	19 59 11.4	0.646	16	7 2 51.81	2.3506	18 4 20.9	5.155
17	5 7 48.15	2.5262	19 59 46.1	0.512	17	7 5 12.70	2.3458	17 59 8.6	5.255
18	5 10 19.65	2.5238	20 0 12.8	0.378	18	7 7 33.30	2.3410	17 53 50.3	5.355
19	5 12 51.01	2.5215	20 0 31.4	0.243	19	7 9 53.62	2.3363	17 48 26.0	5.454
20	5 15 22.23	2.5191	20 0 41.9	+0.108	20	7 12 13.66	2.3316	17 42 55.8	5.553
21	5 17 53.30	2.5165	20 0 44.4	-0.025	21	7 14 33.41	2.3268	17 37 19.7	5.650
22	5 20 24.21	2.5139	20 0 38.9	0.158	22	7 16 52.87	2.3219	17 31 37.8	5.746
23	5 22 54.97	2.5113	20 0 25.4	0.292	23	7 19 12.04	2.3171	17 25 50.2	5.840
24	5 25 25.56	2.5084	N.20 0 3.9	0.424	24	7 21 30.92	2.3123	N.17 19 57.0	5.934

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 5.					MONDAY 7.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	7 21 30.92	2.3123	N. 17 19 57.0	5.934	0	9 7 5.34	2.0942	N. 11 5 43.9	9.280
1	7 23 49.51	2.3074	17 13 58.1	6.027	1	9 9 10.87	2.0903	10 56 25.7	9.327
2	7 26 7.81	2.3027	17 7 53.7	6.119	2	9 11 16.17	2.0863	10 47 4.7	9.372
3	7 28 25.83	2.2979	17 1 43.8	6.211	3	9 13 21.23	2.0825	10 37 41.1	9.416
4	7 30 43.56	2.2930	16 55 28.4	6.301	4	9 15 26.07	2.0788	10 28 14.8	9.459
5	7 33 0.99	2.2881	16 49 7.7	6.389	5	9 17 30.69	2.0751	10 18 46.0	9.502
6	7 35 18.13	2.2833	16 42 41.7	6.478	6	9 19 35.08	2.0713	10 9 14.6	9.543
7	7 37 34.99	2.2785	16 36 10.4	6.565	7	9 21 39.25	2.0677	9 59 40.8	9.583
8	7 39 51.55	2.2736	16 29 33.9	6.651	8	9 23 43.20	2.0641	9 50 4.6	9.623
9	7 42 7.82	2.2688	16 22 52.3	6.736	9	9 25 46.94	2.0605	9 40 26.0	9.663
10	7 44 23.81	2.2641	16 16 5.6	6.820	10	9 27 50.46	2.0569	9 30 45.1	9.700
11	7 46 39.51	2.2592	16 9 13.9	6.903	11	9 29 53.77	2.0533	9 21 2.0	9.737
12	7 48 54.91	2.2543	16 2 17.2	6.985	12	9 31 56.88	2.0501	9 11 16.7	9.773
13	7 51 10.02	2.2495	15 55 15.7	7.066	13	9 33 59.78	2.0467	9 1 29.2	9.809
14	7 53 24.85	2.2448	15 48 9.3	7.146	14	9 36 2.48	2.0432	8 51 39.6	9.843
15	7 55 39.39	2.2400	15 40 58.2	7.225	15	9 38 4.97	2.0398	8 41 48.0	9.877
16	7 57 53.65	2.2353	15 33 42.3	7.303	16	9 40 7.26	2.0366	8 31 54.4	9.910
17	8 0 7.62	2.2304	15 26 21.8	7.379	17	9 42 9.36	2.0334	8 21 58.8	9.943
18	8 2 21.30	2.2257	15 18 56.8	7.455	18	9 44 11.27	2.0303	8 12 1.3	9.973
19	8 4 34.70	2.2209	15 11 27.2	7.531	19	9 46 12.99	2.0271	8 2 2.0	10.003
20	8 6 47.81	2.2162	15 3 53.1	7.605	20	9 48 14.52	2.0239	7 52 0.9	10.033
21	8 9 0.64	2.2115	14 56 14.6	7.678	21	9 50 15.86	2.0208	7 41 58.1	10.061
22	8 11 13.19	2.2068	14 48 31.8	7.750	22	9 52 17.02	2.0178	7 31 53.6	10.089
23	8 13 25.46	2.2022	N. 14 40 44.6	7.821	23	9 54 18.00	2.0148	N. 7 21 47.4	10.116
SUNDAY 6.					TUESDAY 8.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	8 15 37.45	2.1975	N. 14 32 53.3	7.890	0	9 56 18.80	2.0119	N. 7 11 39.7	10.142
1	8 17 49.16	2.1929	14 24 57.8	7.959	1	9 58 19.43	2.0091	7 1 30.4	10.168
2	8 20 0.60	2.1883	14 16 58.2	8.028	2	10 0 19.89	2.0062	6 51 19.6	10.192
3	8 22 11.76	2.1837	14 8 54.5	8.095	3	10 2 20.17	2.0033	6 41 7.4	10.215
4	8 24 22.64	2.1791	14 0 46.8	8.161	4	10 4 20.29	2.0007	6 30 53.8	10.238
5	8 26 33.25	2.1746	13 52 35.2	8.226	5	10 6 20.25	1.9979	6 20 38.9	10.259
6	8 28 43.59	2.1701	13 44 19.7	8.290	6	10 8 20.04	1.9953	6 10 22.7	10.281
7	8 30 53.66	2.1656	13 36 0.4	8.353	7	10 10 19.68	1.9927	6 0 5.2	10.302
8	8 33 3.46	2.1612	13 27 37.3	8.416	8	10 12 19.16	1.9901	5 49 46.5	10.321
9	8 35 13.00	2.1568	13 19 10.5	8.477	9	10 14 18.49	1.9876	5 39 26.7	10.339
10	8 37 22.27	2.1523	13 10 40.1	8.537	10	10 16 17.67	1.9851	5 29 5.8	10.358
11	8 39 31.28	2.1480	13 2 6.1	8.596	11	10 18 16.70	1.9826	5 18 43.8	10.375
12	8 41 40.03	2.1437	12 53 28.6	8.654	12	10 20 15.58	1.9803	5 8 20.8	10.391
13	8 43 48.52	2.1393	12 44 47.6	8.712	13	10 22 14.33	1.9779	4 57 56.9	10.406
14	8 45 56.75	2.1351	12 36 3.2	8.768	14	10 24 12.93	1.9756	4 47 32.1	10.421
15	8 48 4.73	2.1308	12 27 15.4	8.824	15	10 26 11.40	1.9733	4 37 6.4	10.435
16	8 50 12.45	2.1266	12 18 24.3	8.878	16	10 28 9.73	1.9711	4 26 39.9	10.448
17	8 52 19.92	2.1224	12 9 30.0	8.932	17	10 30 7.93	1.9689	4 16 12.6	10.461
18	8 54 27.14	2.1183	12 0 32.5	8.984	18	10 32 6.00	1.9668	4 5 44.6	10.473
19	8 56 34.11	2.1142	11 51 31.9	9.036	19	10 34 3.95	1.9648	3 55 15.9	10.483
20	8 58 40.84	2.1102	11 42 28.2	9.087	20	10 36 1.78	1.9628	3 44 46.6	10.493
21	9 0 47.33	2.1061	11 33 21.5	9.136	21	10 37 59.48	1.9608	3 34 16.7	10.503
22	9 2 53.57	2.1020	11 24 11.9	9.185	22	10 39 57.07	1.9588	3 23 46.3	10.511
23	9 4 59.57	2.0981	11 14 59.3	9.233	23	10 41 54.54	1.9569	3 13 15.4	10.518
24	9 7 5.34	2.0942	N. 11 5 43.9	9.280	24	10 43 51.90	1.9551	N. 3 2 44.1	10.526

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 9.					FRIDAY 11.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	10 43 51.90	1.9551	N. 3 2 44.1	10.526	0	12 16 24.97	1.9173	S. 5 16 53.7	10.023
1	10 45 49.15	1.9533	2 52 12.3	10.533	1	12 18 20.01	1.9174	5 26 54.3	9.997
2	10 47 46.30	1.9516	2 41 40.2	10.538	2	12 20 15.06	1.9176	5 36 53.3	9.969
3	10 49 43.34	1.9498	2 31 7.8	10.543	3	12 22 10.12	1.9178	5 46 50.6	9.941
4	10 51 40.28	1.9482	2 20 35.1	10.547	4	12 24 5.20	1.9182	5 56 46.2	9.912
5	10 53 37.12	1.9466	2 10 2.2	10.550	5	12 26 0.30	1.9185	6 6 40.0	9.883
6	10 55 33.87	1.9450	1 59 29.1	10.553	6	12 27 55.42	1.9188	6 16 32.1	9.853
7	10 57 30.52	1.9434	1 48 55.9	10.554	7	12 29 50.56	1.9193	6 26 22.3	9.821
8	10 59 27.08	1.9419	1 38 22.6	10.555	8	12 31 45.73	1.9197	6 36 10.6	9.789
9	11 1 23.55	1.9405	1 27 49.3	10.556	9	12 33 40.92	1.9201	6 45 57.0	9.757
10	11 3 19.94	1.9392	1 17 15.9	10.556	10	12 35 36.14	1.9206	6 55 41.4	9.723
11	11 5 16.25	1.9378	1 6 42.6	10.555	11	12 37 31.39	1.9212	7 5 23.8	9.690
12	11 7 12.47	1.9364	0 56 9.3	10.553	12	12 39 26.68	1.9218	7 15 4.2	9.656
13	11 9 8.62	1.9352	0 45 36.2	10.550	13	12 41 22.00	1.9223	7 24 42.5	9.621
14	11 11 4.70	1.9340	0 35 3.3	10.547	14	12 43 17.35	1.9229	7 34 18.7	9.586
15	11 13 0.70	1.9328	0 24 30.6	10.543	15	12 45 12.75	1.9236	7 43 52.8	9.550
16	11 14 56.63	1.9317	0 13 58.2	10.538	16	12 47 8.18	1.9242	7 53 24.7	9.513
17	11 16 52.50	1.9306	N. 0 3 26.0	10.534	17	12 49 3.65	1.9249	8 2 54.4	9.476
18	11 18 48.30	1.9295	S. 0 7 5.9	10.528	18	12 50 59.17	1.9257	8 12 21.8	9.438
19	11 20 44.04	1.9285	0 17 37.3	10.520	19	12 52 54.73	1.9264	8 21 46.9	9.399
20	11 22 39.72	1.9276	0 28 8.3	10.513	20	12 54 50.34	1.9273	8 31 9.7	9.360
21	11 24 35.35	1.9267	0 38 38.8	10.504	21	12 56 46.00	1.9282	8 40 30.1	9.320
22	11 26 30.92	1.9258	0 49 8.8	10.496	22	12 58 41.72	1.9290	8 49 48.1	9.280
23	11 28 26.44	1.9249	S. 0 59 38.3	10.487	23	13 0 37.48	1.9298	S. 8 59 3.7	9.238
THURSDAY 10.					SATURDAY 12.				
0	11 30 21.91	1.9242	S. 1 10 7.2	10.476	0	13 2 33.29	1.9307	S. 9 8 16.7	9.196
1	11 32 17.34	1.9234	1 20 35.4	10.465	1	13 4 29.16	1.9317	9 17 27.2	9.154
2	11 34 12.72	1.9227	1 31 3.0	10.453	2	13 6 25.09	1.9327	9 26 35.2	9.112
3	11 36 8.06	1.9220	1 41 29.8	10.441	3	13 8 21.08	1.9337	9 35 40.6	9.068
4	11 38 3.36	1.9214	1 51 55.9	10.428	4	13 10 17.13	1.9347	9 44 43.4	9.024
5	11 39 58.63	1.9208	2 2 21.2	10.414	5	13 12 13.24	1.9358	9 53 43.5	8.980
6	11 41 53.86	1.9203	2 12 45.6	10.399	6	13 14 9.42	1.9368	10 2 41.0	8.935
7	11 43 49.06	1.9198	2 23 9.1	10.384	7	13 16 5.66	1.9379	10 11 35.7	8.888
8	11 45 44.23	1.9193	2 33 31.7	10.368	8	13 18 1.97	1.9391	10 20 27.6	8.842
9	11 47 39.38	1.9189	2 43 53.3	10.352	9	13 19 58.35	1.9402	10 29 16.7	8.794
10	11 49 34.50	1.9185	2 54 13.9	10.335	10	13 21 54.79	1.9413	10 38 2.9	8.747
11	11 51 29.60	1.9182	3 4 33.5	10.317	11	13 23 51.30	1.9425	10 46 46.3	8.699
12	11 53 24.68	1.9178	3 14 51.9	10.298	12	13 25 47.89	1.9438	10 55 26.8	8.650
13	11 55 19.74	1.9176	3 25 9.2	10.279	13	13 27 44.55	1.9450	11 4 4.3	8.601
14	11 57 14.79	1.9174	3 35 25.4	10.259	14	13 29 41.29	1.9463	11 12 38.9	8.551
15	11 59 9.83	1.9172	3 45 40.3	10.238	15	13 31 38.11	1.9476	11 21 10.4	8.499
16	12 1 4.85	1.9170	3 55 54.0	10.218	16	13 33 35.00	1.9488	11 29 38.8	8.448
17	12 2 59.87	1.9169	4 6 6.4	10.196	17	13 35 31.97	1.9502	11 38 4.2	8.397
18	12 4 54.88	1.9168	4 16 17.5	10.173	18	13 37 29.02	1.9515	11 46 26.5	8.345
19	12 6 49.89	1.9168	4 26 27.2	10.150	19	13 39 26.15	1.9528	11 54 45.6	8.291
20	12 8 44.90	1.9168	4 36 35.5	10.126	20	13 41 23.36	1.9543	12 3 1.4	8.238
21	12 10 39.91	1.9168	4 46 42.3	10.102	21	13 43 20.66	1.9557	12 11 14.1	8.184
22	12 12 34.92	1.9169	4 56 47.7	10.077	22	13 45 18.04	1.9571	12 19 23.5	8.129
23	12 14 29.94	1.9171	5 6 51.5	10.050	23	13 47 15.51	1.9585	12 27 29.6	8.074
24	12 16 24.97	1.9173	S. 5 16 53.7	10.023	24	13 49 13.06	1.9599	S. 12 35 32.4	8.019

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 13.					TUESDAY 15.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	13 49 13.06	1.9599	S. 12 35 32.4	8.019	0	15 25 11.22	2.0407	S. 17 46 5.1	4.733
1	13 51 10.70	1.9614	12 43 31.9	7.963	1	15 27 13.71	2.0423	17 50 46.7	4.653
2	13 53 8.43	1.9629	12 51 27.9	7.905	2	15 29 16.30	2.0441	17 55 23.4	4.572
3	13 55 6.25	1.9644	12 59 20.5	7.848	3	15 31 19.00	2.0458	17 59 55.3	4.492
4	13 57 4.16	1.9660	13 7 9.6	7.789	4	15 33 21.80	2.0475	18 4 22.4	4.411
5	13 59 2.17	1.9676	13 14 55.2	7.731	5	15 35 24.70	2.0492	18 8 44.6	4.329
6	14 1 0.27	1.9691	13 22 37.3	7.673	6	15 37 27.70	2.0508	18 13 1.9	4.248
7	14 2 58.46	1.9706	13 30 15.9	7.613	7	15 39 30.79	2.0524	18 17 14.3	4.165
8	14 4 56.74	1.9722	13 37 50.8	7.552	8	15 41 33.99	2.0541	18 21 21.7	4.083
9	14 6 55.12	1.9738	13 45 22.1	7.492	9	15 43 37.28	2.0557	18 25 24.2	4.000
10	14 8 53.60	1.9754	13 52 49.8	7.430	10	15 45 40.67	2.0573	18 29 21.7	3.917
11	14 10 52.17	1.9769	14 0 13.7	7.368	11	15 47 44.16	2.0590	18 33 14.2	3.833
12	14 12 50.83	1.9786	14 7 33.9	7.306	12	15 49 47.75	2.0606	18 37 1.7	3.749
13	14 14 49.60	1.9803	14 14 50.4	7.243	13	15 51 51.43	2.0621	18 40 44.1	3.665
14	14 16 48.47	1.9819	14 22 3.1	7.179	14	15 53 55.20	2.0637	18 44 21.5	3.581
15	14 18 47.43	1.9835	14 29 11.9	7.115	15	15 55 59.07	2.0653	18 47 53.8	3.496
16	14 20 46.49	1.9853	14 36 16.9	7.052	16	15 58 3.03	2.0668	18 51 21.0	3.411
17	14 22 45.66	1.9870	14 43 18.1	6.987	17	16 0 7.08	2.0683	18 54 43.1	3.325
18	14 24 44.93	1.9887	14 50 15.3	6.920	18	16 2 11.23	2.0698	18 58 0.0	3.238
19	14 26 44.30	1.9903	14 57 8.5	6.854	19	16 4 15.46	2.0713	19 1 11.7	3.153
20	14 28 43.77	1.9920	15 3 57.8	6.788	20	16 6 19.78	2.0728	19 4 18.3	3.067
21	14 30 43.34	1.9938	15 10 43.1	6.722	21	16 8 24.20	2.0743	19 7 19.7	2.980
22	14 32 43.02	1.9954	15 17 24.4	6.654	22	16 10 28.70	2.0758	19 10 15.9	2.893
23	14 34 42.79	1.9971	S. 15 24 1.6	6.585	23	16 12 33.29	2.0773	S. 19 13 6.8	2.804
MONDAY 14.					WEDNESDAY 16.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	14 36 42.67	1.9989	S. 15 30 34.6	6.517	0	16 14 37.97	2.0787	S. 19 15 52.4	2.717
1	14 38 42.66	2.0007	15 37 3.6	6.448	1	16 16 42.73	2.0801	19 18 32.8	2.629
2	14 40 42.75	2.0023	15 43 28.4	6.378	2	16 18 47.58	2.0815	19 21 7.9	2.541
3	14 42 42.94	2.0041	15 49 49.0	6.308	3	16 20 52.51	2.0828	19 23 37.7	2.453
4	14 44 43.24	2.0058	15 56 5.4	6.238	4	16 22 57.52	2.0842	19 26 2.2	2.364
5	14 46 43.64	2.0076	16 2 17.5	6.167	5	16 25 2.61	2.0856	19 28 21.4	2.275
6	14 48 44.15	2.0093	16 8 25.4	6.096	6	16 27 7.79	2.0869	19 30 35.2	2.185
7	14 50 44.76	2.0111	16 14 29.0	6.023	7	16 29 13.04	2.0882	19 32 43.6	2.096
8	14 52 45.48	2.0128	16 20 28.2	5.951	8	16 31 18.37	2.0895	19 34 46.7	2.006
9	14 54 46.30	2.0146	16 26 23.1	5.878	9	16 33 23.78	2.0908	19 36 44.3	1.916
10	14 56 47.23	2.0163	16 32 13.6	5.805	10	16 35 29.26	2.0920	19 38 36.6	1.826
11	14 58 48.26	2.0181	16 37 59.7	5.731	11	16 37 34.82	2.0933	19 40 23.4	1.734
12	15 0 49.40	2.0198	16 43 41.3	5.657	12	16 39 40.45	2.0944	19 42 4.7	1.643
13	15 2 50.64	2.0216	16 49 18.5	5.583	13	16 41 46.15	2.0957	19 43 40.6	1.553
14	15 4 51.99	2.0234	16 54 51.2	5.508	14	16 43 51.93	2.0968	19 45 11.1	1.463
15	15 6 53.45	2.0252	17 0 19.4	5.432	15	16 45 57.77	2.0980	19 46 36.1	1.371
16	15 8 55.01	2.0268	17 5 43.0	5.355	16	16 48 3.69	2.0992	19 47 55.6	1.279
17	15 10 56.67	2.0286	17 11 2.0	5.278	17	16 50 9.67	2.1003	19 49 9.6	1.188
18	15 12 58.44	2.0303	17 16 16.4	5.202	18	16 52 15.72	2.1014	19 50 18.1	1.096
19	15 15 0.31	2.0320	17 21 26.2	5.125	19	16 54 21.84	2.1025	19 51 21.1	1.003
20	15 17 2.28	2.0338	17 26 31.4	5.048	20	16 56 28.02	2.1035	19 52 18.5	0.911
21	15 19 4.36	2.0355	17 31 31.9	4.969	21	16 58 34.26	2.1045	19 53 10.4	0.818
22	15 21 6.54	2.0373	17 36 27.7	4.891	22	17 0 40.56	2.1055	19 53 56.7	0.726
23	15 23 8.83	2.0390	17 41 18.8	4.812	23	17 2 46.92	2.1065	19 54 37.5	0.633
24	15 25 11.22	2.0407	S. 17 46 5.1	4.733	24	17 4 53.34	2.1075	S. 19 55 12.6	0.539

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 17.					SATURDAY 19.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	17 4 53.34	2.1075	S. 19 55 12.6	-0.539	0	18 46 47.82	2.1319	S. 18 32 35.9	+3.982
1	17 6 59.82	2.1085	19 55 42.2	0.447	1	18 48 55.74	2.1320	18 28 34.2	4.075
2	17 9 6.36	2.1094	19 56 6.2	0.353	2	18 51 3.66	2.1321	18 24 26.9	4.168
3	17 11 12.95	2.1103	19 56 24.6	0.260	3	18 53 11.59	2.1322	18 20 14.0	4.261
4	17 13 19.59	2.1112	19 56 37.4	0.167	4	18 55 19.52	2.1323	18 15 55.6	4.353
5	17 15 26.29	2.1121	19 56 44.6	-0.073	5	18 57 27.46	2.1324	18 11 31.6	4.446
6	17 17 33.04	2.1129	19 56 46.2	+0.021	6	18 59 35.41	2.1325	18 7 2.1	4.538
7	17 19 39.84	2.1138	19 56 42.1	0.115	7	19 1 43.36	2.1326	18 2 27.0	4.630
8	17 21 46.69	2.1146	19 56 32.4	0.208	8	19 3 51.32	2.1327	17 57 46.5	4.721
9	17 23 53.59	2.1154	19 56 17.1	0.303	9	19 5 59.28	2.1328	17 53 0.5	4.813
10	17 26 0.54	2.1162	19 55 56.1	0.397	10	19 8 7.25	2.1328	17 48 8.9	4.905
11	17 28 7.53	2.1169	19 55 29.5	0.491	11	19 10 15.22	2.1328	17 43 11.9	4.996
12	17 30 14.57	2.1177	19 54 57.2	0.585	12	19 12 23.19	2.1329	17 38 9.4	5.087
13	17 32 21.65	2.1183	19 54 19.3	0.679	13	19 14 31.17	2.1330	17 33 1.5	5.178
14	17 34 28.77	2.1190	19 53 35.7	0.774	14	19 16 39.15	2.1330	17 27 48.1	5.268
15	17 36 35.93	2.1197	19 52 46.4	0.869	15	19 18 47.13	2.1330	17 22 29.3	5.358
16	17 38 43.13	2.1203	19 51 51.4	0.963	16	19 20 55.11	2.1331	17 17 5.1	5.448
17	17 40 50.37	2.1209	19 50 50.8	1.058	17	19 23 3.10	2.1332	17 11 35.5	5.538
18	17 42 57.64	2.1215	19 49 44.5	1.153	18	19 25 11.09	2.1332	17 6 0.5	5.628
19	17 45 4.95	2.1222	19 48 32.5	1.248	19	19 27 19.08	2.1332	17 0 20.1	5.717
20	17 47 12.30	2.1228	19 47 14.8	1.342	20	19 29 27.07	2.1333	16 54 34.4	5.807
21	17 49 19.68	2.1233	19 45 51.5	1.436	21	19 31 35.07	2.1333	16 48 43.3	5.896
22	17 51 27.09	2.1238	19 44 22.5	1.532	22	19 33 43.07	2.1333	16 42 46.9	5.984
23	17 53 34.53	2.1243	S. 19 42 47.7	+1.627	23	19 35 51.07	2.1333	S. 16 36 45.2	+6.073
FRIDAY 18.					SUNDAY 20.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	17 55 42.01	2.1249	S. 19 41 7.3	+1.721	0	19 37 59.07	2.1334	S. 16 30 38.2	+6.161
1	17 57 49.52	2.1253	19 39 21.2	1.816	1	19 40 7.08	2.1335	16 24 25.9	6.248
2	17 59 57.05	2.1258	19 37 29.4	1.911	2	19 42 15.09	2.1336	16 18 8.4	6.335
3	18 2 4.61	2.1262	19 35 31.9	2.006	3	19 44 23.11	2.1337	16 11 45.7	6.422
4	18 4 12.19	2.1266	19 33 28.7	2.100	4	19 46 31.13	2.1337	16 5 17.7	6.510
5	18 6 19.80	2.1270	19 31 19.9	2.194	5	19 48 39.15	2.1338	15 58 44.5	6.596
6	18 8 27.43	2.1274	19 29 5.4	2.289	6	19 50 47.18	2.1338	15 52 6.2	6.682
7	18 10 35.09	2.1278	19 26 45.2	2.384	7	19 52 55.21	2.1339	15 45 22.7	6.768
8	18 12 42.77	2.1282	19 24 19.3	2.479	8	19 55 3.25	2.1340	15 38 34.0	6.854
9	18 14 50.47	2.1284	19 21 47.7	2.573	9	19 57 11.29	2.1341	15 31 40.2	6.939
10	18 16 58.18	2.1288	19 19 10.5	2.668	10	19 59 19.34	2.1343	15 24 41.3	7.024
11	18 19 5.92	2.1291	19 16 27.6	2.763	11	20 1 27.40	2.1343	15 17 37.3	7.108
12	18 21 13.67	2.1293	19 13 39.0	2.857	12	20 3 35.46	2.1344	15 10 28.3	7.193
13	18 23 21.44	2.1297	19 10 44.8	2.951	13	20 5 43.53	2.1347	15 3 14.2	7.277
14	18 25 29.23	2.1299	19 7 44.9	3.046	14	20 7 51.62	2.1348	14 55 55.1	7.359
15	18 27 37.03	2.1302	19 4 39.3	3.140	15	20 9 59.71	2.1349	14 48 31.1	7.442
16	18 29 44.85	2.1304	19 1 28.1	3.233	16	20 12 7.81	2.1351	14 41 2.1	7.524
17	18 31 52.68	2.1306	18 58 11.3	3.328	17	20 14 15.92	2.1353	14 33 28.2	7.607
18	18 34 0.52	2.1308	18 54 48.8	3.422	18	20 16 24.04	2.1355	14 25 49.3	7.689
19	18 36 8.38	2.1311	18 51 20.7	3.515	19	20 18 32.18	2.1358	14 18 5.5	7.771
20	18 38 16.25	2.1312	18 47 47.0	3.609	20	20 20 40.33	2.1359	14 10 16.8	7.852
21	18 40 24.12	2.1313	18 44 7.6	3.703	21	20 22 48.49	2.1361	14 2 23.3	7.932
22	18 42 32.01	2.1316	18 40 22.6	3.797	22	20 24 56.66	2.1363	13 54 25.0	8.012
23	18 44 39.91	2.1318	18 36 32.0	3.889	23	20 27 4.85	2.1366	13 46 21.9	8.091
24	18 46 47.82	2.1319	S. 18 32 35.9	+3.982	24	20 29 13.05	2.1369	S. 13 38 14.1	+8.170

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 21.					WEDNESDAY 23.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	20 29 13.05	2.1369	S. 13 38 14.1	+ 8.170	0	22 12 35.18	2.1818	S. 5 45 3.4	+11.294
1	20 31 21.28	2.1373	13 30 1.5	8.249	1	22 14 46.14	2.1836	5 33 44.3	11.341
2	20 33 29.53	2.1376	13 21 44.2	8.328	2	22 16 57.21	2.1854	5 22 22.5	11.387
3	20 35 37.79	2.1378	13 13 22.2	8.406	3	22 19 8.39	2.1873	5 10 57.9	11.433
4	20 37 46.07	2.1382	13 4 55.5	8.483	4	22 21 19.68	2.1892	4 59 30.6	11.478
5	20 39 54.38	2.1387	12 56 24.2	8.560	5	22 23 31.09	2.1911	4 48 0.6	11.521
6	20 42 2.72	2.1392	12 47 48.3	8.637	6	22 25 42.61	2.1931	4 36 28.1	11.563
7	20 44 11.08	2.1395	12 39 7.8	8.713	7	22 27 54.26	2.1952	4 24 53.1	11.604
8	20 46 19.46	2.1399	12 30 22.8	8.788	8	22 30 6.03	2.1972	4 13 15.6	11.645
9	20 48 27.87	2.1404	12 21 33.3	8.863	9	22 32 17.92	2.1993	4 1 35.7	11.685
10	20 50 36.31	2.1409	12 12 39.3	8.938	10	22 34 29.94	2.2014	3 49 53.4	11.723
11	20 52 44.78	2.1414	12 3 40.8	9.012	11	22 36 42.09	2.2036	3 38 8.9	11.760
12	20 54 53.28	2.1420	11 54 37.9	9.085	12	22 38 54.37	2.2058	3 26 22.2	11.797
13	20 57 1.82	2.1426	11 45 30.6	9.158	13	22 41 6.79	2.2082	3 14 33.3	11.832
14	20 59 10.39	2.1432	11 36 19.0	9.230	14	22 43 19.35	2.2105	3 2 42.4	11.866
15	21 1 19.00	2.1438	11 27 3.0	9.302	15	22 45 32.05	2.2128	2 50 49.4	11.900
16	21 3 27.64	2.1444	11 17 42.8	9.373	16	22 47 44.89	2.2152	2 38 54.4	11.933
17	21 5 36.33	2.1451	11 8 18.3	9.443	17	22 49 57.87	2.2176	2 26 57.5	11.963
18	21 7 45.05	2.1458	10 58 49.6	9.513	18	22 52 11.00	2.2202	2 14 58.8	11.993
19	21 9 53.82	2.1465	10 49 16.7	9.583	19	22 54 24.29	2.2228	2 2 58.4	12.021
20	21 12 2.63	2.1473	10 39 39.7	9.652	20	22 56 37.73	2.2253	1 50 56.3	12.049
21	21 14 11.49	2.1481	10 29 58.5	9.720	21	22 58 51.33	2.2279	1 38 52.5	12.077
22	21 16 20.40	2.1489	10 20 13.3	9.787	22	23 1 5.08	2.2305	1 26 47.1	12.102
23	21 18 29.36	2.1497	S. 10 10 24.1	+ 9.853	23	23 3 18.99	2.2333	S. 1 14 40.3	+12.126
TUESDAY 22.					THURSDAY 24.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	21 20 38.36	2.1505	S. 10 0 30.9	+ 9.920	0	23 5 33.07	2.2360	S. 1 2 32.0	+12.149
1	21 22 47.42	2.1515	9 50 33.7	9.986	1	23 7 47.31	2.2388	0 50 22.4	12.171
2	21 24 56.54	2.1524	9 40 32.6	10.051	2	23 10 1.72	2.2417	0 38 11.5	12.192
3	21 27 5.71	2.1533	9 30 27.6	10.115	3	23 12 16.31	2.2446	0 25 59.4	12.211
4	21 29 14.94	2.1543	9 20 18.8	10.178	4	23 14 31.07	2.2475	0 13 46.2	12.229
5	21 31 24.23	2.1554	9 10 6.2	10.242	5	23 16 46.01	2.2504	S. 0 1 31.9	12.246
6	21 33 33.59	2.1565	8 59 49.8	10.304	6	23 19 1.12	2.2534	N. 0 10 43.3	12.261
7	21 35 43.01	2.1576	8 49 29.7	10.366	7	23 21 16.42	2.2565	0 22 59.4	12.276
8	21 37 52.50	2.1588	8 39 5.9	10.427	8	23 23 31.90	2.2596	0 35 16.4	12.289
9	21 40 2.06	2.1598	8 28 38.5	10.487	9	23 25 47.57	2.2628	0 47 34.1	12.301
10	21 42 11.68	2.1610	8 18 7.5	10.547	10	23 28 3.43	2.2659	0 59 52.5	12.312
11	21 44 21.38	2.1623	8 7 32.9	10.605	11	23 30 19.48	2.2691	1 12 11.5	12.322
12	21 46 31.16	2.1636	7 56 54.9	10.662	12	23 32 35.72	2.2723	1 24 31.1	12.330
13	21 48 41.01	2.1648	7 46 13.5	10.719	13	23 34 52.16	2.2757	1 36 51.1	12.336
14	21 50 50.94	2.1662	7 35 28.6	10.776	14	23 37 8.80	2.2799	1 49 11.4	12.341
15	21 53 0.96	2.1677	7 24 40.4	10.831	15	23 39 25.64	2.2824	2 1 32.0	12.344
16	21 55 11.06	2.1691	7 13 48.9	10.886	16	23 41 42.69	2.2859	2 13 52.7	12.347
17	21 57 21.25	2.1706	7 2 54.1	10.940	17	23 43 59.95	2.2893	2 26 13.6	12.348
18	21 59 31.53	2.1720	6 51 56.1	10.993	18	23 46 17.41	2.2928	2 38 34.5	12.348
19	22 1 41.89	2.1735	6 40 54.9	11.046	19	23 48 35.08	2.2963	2 50 55.3	12.346
20	22 3 52.35	2.1752	6 29 50.6	11.097	20	23 50 52.97	2.2999	3 3 16.0	12.343
21	22 6 2.91	2.1768	6 18 43.3	11.148	21	23 53 11.07	2.3035	3 15 36.5	12.338
22	22 8 13.56	2.1784	6 7 32.9	11.198	22	23 55 29.39	2.3072	3 27 56.6	12.332
23	22 10 24.32	2.1802	5 56 19.6	11.246	23	23 57 47.93	2.3108	3 40 16.3	12.324
24	22 12 35.18	2.1818	S. 5 45 3.4	+11.294	24	0 0 6.69	2.3146	N. 3 52 35.5	+12.315

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 25.					SUNDAY 27.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	0 0 6.69	2.3146	N. 3 52 35.5	+12.315	0	1 55 57.45	2.5159	N. 13 3 3.9	+9.988
1	0 2 25.68	2.3183	4 4 54.1	12.305	1	1 58 28.53	2.5201	13 13 0.5	9.898
2	0 4 44.89	2.3221	4 17 12.1	12.293	2	2 0 59.86	2.5242	13 22 51.6	9.807
3	0 7 4.33	2.3259	4 29 29.3	12.279	3	2 3 31.43	2.5282	13 32 37.3	9.715
4	0 9 24.00	2.3298	4 41 45.6	12.263	4	2 6 3.24	2.5323	13 42 17.4	9.621
5	0 11 43.91	2.3338	4 54 0.9	12.247	5	2 8 35.30	2.5363	13 51 51.8	9.525
6	0 14 4.05	2.3376	5 6 15.2	12.229	6	2 11 7.59	2.5401	14 1 20.4	9.428
7	0 16 24.42	2.3415	5 18 28.4	12.209	7	2 13 40.11	2.5440	14 10 43.2	9.330
8	0 18 45.03	2.3455	5 30 40.3	12.188	8	2 16 12.87	2.5479	14 20 0.0	9.230
9	0 21 5.88	2.3495	5 42 50.9	12.165	9	2 18 45.86	2.5517	14 29 10.8	9.128
10	0 23 26.97	2.3536	5 55 0.1	12.141	10	2 21 19.07	2.5554	14 38 15.4	9.025
11	0 25 48.31	2.3577	6 7 7.8	12.114	11	2 23 52.51	2.5592	14 47 13.8	8.921
12	0 28 9.89	2.3618	6 19 13.8	12.086	12	2 26 26.17	2.5628	14 56 5.9	8.815
13	0 30 31.72	2.3658	6 31 18.1	12.057	13	2 29 0.05	2.5664	15 4 51.6	8.708
14	0 32 53.79	2.3699	6 43 20.6	12.027	14	2 31 34.14	2.5699	15 13 30.8	8.598
15	0 35 16.11	2.3742	6 55 21.3	11.995	15	2 34 8.44	2.5734	15 22 3.4	8.488
16	0 37 38.69	2.3784	7 7 20.0	11.960	16	2 36 42.95	2.5768	15 30 29.4	8.377
17	0 40 1.52	2.3826	7 19 16.5	11.923	17	2 39 17.66	2.5802	15 38 48.6	8.263
18	0 42 24.60	2.3868	7 31 10.8	11.887	18	2 41 52.57	2.5835	15 47 1.0	8.149
19	0 44 47.93	2.3910	7 43 2.9	11.848	19	2 44 27.68	2.5868	15 55 6.5	8.033
20	0 47 11.52	2.3953	7 54 52.6	11.808	20	2 47 2.98	2.5899	16 3 5.0	7.917
21	0 49 35.36	2.3996	8 6 39.8	11.765	21	2 49 38.47	2.5930	16 10 56.5	7.798
22	0 51 59.47	2.4039	8 18 24.4	11.721	22	2 52 14.14	2.5960	16 18 40.8	7.678
23	0 54 23.83	2.4081	N. 8 30 6.3	+11.675	23	2 54 49.99	2.5990	N. 16 26 17.9	+7.558
SATURDAY 26.					MONDAY 28.				
0	0 56 48.44	2.4124	N. 8 41 45.4	+11.628	0	2 57 26.02	2.6019	N. 16 33 47.7	+7.436
1	0 59 13.32	2.4168	8 53 21.6	11.579	1	3 0 2.22	2.6047	16 41 10.2	7.313
2	1 1 38.46	2.4212	9 4 54.9	11.528	2	3 2 38.58	2.6073	16 48 25.2	7.188
3	1 4 3.86	2.4255	9 16 25.0	11.475	3	3 5 15.10	2.6100	16 55 32.7	7.063
4	1 6 29.52	2.4298	9 27 51.9	11.422	4	3 7 51.78	2.6125	17 2 32.7	6.936
5	1 8 55.44	2.4342	9 39 15.6	11.367	5	3 10 28.60	2.6149	17 9 25.0	6.808
6	1 11 21.62	2.4386	9 50 35.9	11.308	6	3 13 5.57	2.6173	17 16 9.6	6.679
7	1 13 48.07	2.4430	10 1 52.6	11.248	7	3 15 42.68	2.6197	17 22 46.5	6.550
8	1 16 14.78	2.4473	10 13 5.7	11.188	8	3 18 19.93	2.6218	17 29 15.6	6.419
9	1 18 41.75	2.4517	10 24 15.2	11.126	9	3 20 57.30	2.6239	17 35 36.8	6.287
10	1 21 8.98	2.4561	10 35 20.8	11.061	10	3 23 34.80	2.6259	17 41 50.0	6.154
11	1 23 36.48	2.4604	10 46 22.5	10.996	11	3 26 12.41	2.6278	17 47 55.3	6.021
12	1 26 4.23	2.4648	10 57 20.3	10.928	12	3 28 50.13	2.6296	17 53 52.5	5.886
13	1 28 32.25	2.4692	11 8 13.9	10.858	13	3 31 27.96	2.6313	17 59 41.6	5.751
14	1 31 0.53	2.4735	11 19 3.3	10.788	14	3 34 5.89	2.6329	18 5 22.6	5.614
15	1 33 29.07	2.4778	11 29 48.4	10.715	15	3 36 43.91	2.6344	18 10 55.3	5.477
16	1 35 57.86	2.4821	11 40 29.1	10.640	16	3 39 22.02	2.6358	18 16 19.8	5.339
17	1 38 26.92	2.4864	11 51 5.2	10.564	17	3 42 0.21	2.6372	18 21 36.0	5.201
18	1 40 56.23	2.4907	12 1 36.8	10.487	18	3 44 38.48	2.6384	18 26 43.9	5.062
19	1 43 25.80	2.4949	12 12 3.6	10.408	19	3 47 16.82	2.6395	18 31 43.4	4.922
20	1 45 55.62	2.4992	12 22 25.7	10.328	20	3 49 55.22	2.6405	18 36 34.5	4.782
21	1 48 25.70	2.5034	12 32 42.9	10.244	21	3 52 33.68	2.6413	18 41 17.2	4.641
22	1 50 56.03	2.5077	12 42 55.0	10.159	22	3 55 12.18	2.6421	18 45 51.4	4.498
23	1 53 26.62	2.5118	12 53 2.0	10.074	23	3 57 50.73	2.6428	18 50 17.0	4.356
24	1 55 57.45	2.5159	N. 13 3 3.9	+9.988	24	4 0 29.32	2.6434	N. 18 54 34.1	+4.213

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 29.					THURSDAY 31.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	4 0 29.32	2.6434	N.18 54 34.1	+4.213	0	6 5 50.59	2.5388	N.19 30 36.2	-2.599
1	4 3 7.94	2.6438	18 58 42.6	4.070	1	6 8 22.78	2.5343	19 27 56.4	2.728
2	4 5 46.58	2.6441	19 2 42.5	3.927	2	6 10 54.70	2.5296	19 25 8.8	2.857
3	4 8 25.23	2.6443	19 6 33.8	3.783	3	6 13 26.33	2.5248	19 22 13.6	2.983
4	4 11 3.89	2.6443	19 10 16.4	3.638	4	6 15 57.68	2.5201	19 19 10.8	3.110
5	4 13 42.55	2.6443	19 13 50.3	3.493	5	6 18 28.74	2.5153	19 16 0.4	3.235
6	4 16 21.21	2.6442	19 17 15.5	3.348	6	6 20 59.51	2.5104	19 12 42.6	3.359
7	4 18 59.85	2.6439	19 20 32.0	3.203	7	6 23 29.99	2.5055	19 9 17.3	3.483
8	4 21 38.48	2.6437	19 23 39.8	3.058	8	6 26 0.17	2.5004	19 5 44.6	3.606
9	4 24 17.09	2.6432	19 26 38.9	2.912	9	6 28 30.04	2.4953	19 2 4.6	3.728
10	4 26 55.66	2.6425	19 29 29.2	2.765	10	6 30 59.61	2.4903	18 58 17.3	3.848
11	4 29 34.19	2.6418	19 32 10.7	2.618	11	6 33 28.87	2.4851	18 54 22.9	3.967
12	4 32 12.67	2.6409	19 34 43.4	2.473	12	6 35 57.82	2.4799	18 50 21.3	4.085
13	4 34 51.10	2.6400	19 37 7.4	2.327	13	6 38 26.46	2.4746	18 46 12.7	4.202
14	4 37 29.47	2.6389	19 39 22.6	2.180	14	6 40 54.77	2.4693	18 41 57.1	4.318
15	4 40 7.77	2.6378	19 41 29.0	2.033	15	6 43 22.77	2.4639	18 37 34.5	4.433
16	4 42 46.00	2.6365	19 43 26.6	1.887	16	6 45 50.44	2.4584	18 33 5.1	4.547
17	4 45 24.15	2.6351	19 45 15.4	1.741	17	6 48 17.78	2.4530	18 28 28.9	4.660
18	4 48 2.21	2.6335	19 46 55.5	1.595	18	6 50 44.80	2.4476	18 23 45.9	4.772
19	4 50 40.17	2.6318	19 48 26.8	1.449	19	6 53 11.49	2.4420	18 18 56.3	4.882
20	4 53 18.03	2.6301	19 49 49.4	1.303	20	6 55 37.84	2.4364	18 14 0.1	4.991
21	4 55 55.78	2.6283	19 51 3.2	1.158	21	6 58 3.86	2.4308	18 8 57.4	5.099
22	4 58 33.42	2.6263	19 52 8.3	1.012	22	7 0 29.54	2.4253	18 3 48.2	5.207
23	5 1 10.94	2.6242	N.19 53 4.6	+0.866	23	7 2 54.89	2.4196	N.17 58 32.6	-5.313
WEDNESDAY 30.					FRIDAY, NOVEMBER 1.				
0	5 3 48.32	2.6219	N.19 53 52.2	+0.722	0	7 5 19.89	2.4138	N.17 53 10.7	-5.418
1	5 6 25.57	2.6197	19 54 31.2	0.578	PHASES OF THE MOON.				
2	5 9 2.68	2.6173	19 55 1.5	0.433					
3	5 11 39.64	2.6147	19 55 23.1	0.288					
4	5 14 16.44	2.6120	19 55 36.1	0.145					
5	5 16 53.08	2.6093	19 55 40.5	+0.002					
6	5 19 29.55	2.6064	19 55 36.3	-0.141					
7	5 22 5.85	2.6035	19 55 23.6	0.283					
8	5 24 41.97	2.6004	19 55 2.4	0.424					
9	5 27 17.90	2.5973	19 54 32.7	0.565					
10	5 29 53.64	2.5940	19 53 54.6	0.705					
11	5 32 29.18	2.5906	19 53 8.1	0.845					
12	5 35 4.51	2.5871	19 52 13.2	0.985					
13	5 37 39.63	2.5836	19 51 9.9	1.123					
14	5 40 14.54	2.5800	19 49 58.4	1.261					
15	5 42 49.23	2.5763	19 48 38.6	1.398					
16	5 45 23.69	2.5724	19 47 10.6	1.535					
17	5 47 57.92	2.5685	19 45 34.4	1.671					
18	5 50 31.91	2.5645	19 43 50.1	1.806					
19	5 53 5.66	2.5604	19 41 57.7	1.941					
20	5 55 39.16	2.5563	19 39 57.2	2.074					
21	5 58 12.41	2.5520	19 37 48.8	2.206					
22	6 0 45.40	2.5477	19 35 32.5	2.338					
23	6 3 18.13	2.5433	19 33 8.3	2.469					
24	6 5 50.59	2.5388	N.19 30 36.2	-2.599					

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	<i>a</i> Pegasi	W.	62 59 18	2312	64 45 0	2315	66 30 38	2320	68 16 9	2325
	Pollux	E.	59 12 10	2239	57 24 40	2253	55 37 31	2269	53 50 45	2285
	Regulus	E.	95 27 37	2137	93 37 34	2146	91 47 45	2155	89 58 10	2165
	SUN	E.	134 35 10	2429	132 52 16	2438	131 9 35	2448	129 27 8	2458
2	<i>a</i> Pegasi	W.	77 1 20	2365	78 45 45	2375	80 29 56	2385	82 13 52	2396
	<i>a</i> Arietis	W.	33 24 2	2383	35 8 1	2381	36 52 3	2380	38 36 6	2381
	Pollux	E.	45 3 33	2387	43 19 39	2411	41 36 20	2438	39 53 39	2467
	Regulus	E.	80 54 13	2221	79 6 17	2234	77 18 40	2247	75 31 21	2260
	SUN	E.	120 58 42	2515	119 17 50	2528	117 37 16	2541	115 57 0	2554
3	<i>a</i> Arietis	W.	47 15 24	2406	48 58 50	2414	50 42 4	2423	52 25 7	2433
	Regulus	E.	66 39 42	2327	64 54 22	2342	63 9 24	2356	61 24 46	2370
	SUN	E.	107 40 16	2623	106 1 52	2637	104 23 47	2652	102 46 3	2667
4	<i>a</i> Arietis	W.	60 56 46	2485	62 38 20	2497	64 19 37	2508	66 0 39	2520
	Aldebaran	W.	27 21 3	2445	29 3 34	2455	30 45 50	2466	32 27 50	2477
	Regulus	E.	52 46 51	2445	51 4 20	2460	49 22 11	2476	47 40 24	2491
	SUN	E.	94 42 17	2740	93 6 30	2754	91 31 2	2769	89 55 53	2784
5	<i>a</i> Arietis	W.	74 21 39	2580	76 1 1	2592	77 40 6	2604	79 18 55	2616
	Aldebaran	W.	40 53 52	2536	42 34 15	2548	44 14 21	2560	45 54 11	2572
	Regulus	E.	39 16 59	2572	37 37 26	2590	35 58 17	2607	34 19 32	2625
	SUN	E.	82 4 56	2855	80 31 40	2869	78 58 42	2883	77 26 2	2897
6	<i>a</i> Arietis	W.	87 28 55	2677	89 6 6	2688	90 43 2	2700	92 19 42	2711
	Aldebaran	W.	54 9 16	2631	55 47 29	2642	57 25 27	2653	59 3 9	2664
	SUN	E.	69 47 0	2964	68 16 2	2977	66 45 20	2989	65 14 54	3001
7	<i>a</i> Arietis	W.	100 19 14	2768	101 54 24	2779	103 29 19	2790	105 4 0	2801
	Aldebaran	W.	67 8 3	2718	68 44 19	2728	70 20 21	2738	71 56 10	2748
	Pollux	W.	26 46 4	3157	28 13 5	3124	29 40 45	3097	31 8 58	3075
	SUN	E.	57 46 30	3061	56 17 33	3073	54 48 51	3084	53 20 22	3095
8	Aldebaran	W.	79 52 7	2795	81 26 41	2804	83 1 4	2812	84 35 16	2821
	Pollux	W.	38 35 23	3014	40 5 18	3099	41 35 20	3005	43 5 27	3002
	SUN	E.	46 1 13	3148	44 34 1	3158	43 7 1	3168	41 40 13	3178
9	Aldebaran	W.	92 23 28	2862	93 56 35	2870	95 29 32	2878	97 2 19	2885
	Pollux	W.	50 36 26	3001	52 6 37	3003	53 36 45	3006	55 6 50	3008
	SUN	E.	34 29 9	3225	33 3 30	3235	31 38 2	3244	30 12 45	3253
13	SUN	W.	10 27 55	3502	11 48 17	3495	13 8 47	3488	14 29 25	3481
	<i>a</i> Aquilæ	E.	91 5 45	3442	89 44 16	3446	88 22 51	3450	87 1 30	3454
14	SUN	W.	21 13 52	3470	22 34 50	3469	23 55 49	3469	25 16 48	3469
	JUPITER	E.	54 32 43	3134	53 5 15	3137	51 37 51	3140	50 10 30	3143
	SATURN	E.	58 50 31	3101	57 22 22	3104	55 54 17	3106	54 26 15	3108
	<i>a</i> Aquilæ	E.	80 16 8	3481	78 55 22	3488	77 34 44	3494	76 14 13	3501
15	SUN	W.	32 1 38	3470	33 22 36	3469	34 43 35	3468	36 4 35	3467
	JUPITER	E.	42 54 33	3156	41 27 31	3158	40 0 31	3160	38 33 34	3162

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	<i>a</i> Pegasi	W.	70 1 32	2331	71 46 46	2339	73 31 49	2347	75 16 41	2355
	Pollux	E.	52 4 24	2303	50 18 28	2322	48 33 0	2342	46 48 1	2363
	Regulus	E.	88 8 49	2176	86 19 45	2187	84 30 58	2198	82 42 27	2209
	SUN	E.	127 44 54	2468	126 2 56	2480	124 21 16	2492	122 39 51	2503
2	<i>a</i> Pegasi	W.	83 57 33	2408	85 40 57	2421	87 24 2	2433	89 6 50	2445
	<i>a</i> Arietis	W.	40 20 9	2383	42 4 8	2387	43 48 2	2392	45 31 48	2399
	Pollux	E.	38 11 39	2499	36 30 24	2534	34 49 58	2572	33 10 25	2615
	Regulus	E.	73 44 22	2273	71 57 42	2286	70 11 22	2300	68 25 22	2313
	SUN	E.	114 17 1	2567	112 37 21	2581	110 58 1	2595	109 18 59	2609
3	<i>a</i> Arietis	W.	54 7 56	2443	55 50 30	2453	57 32 50	2463	59 14 55	2473
	Regulus	E.	59 40 28	2385	57 56 32	2400	56 12 57	2415	54 29 43	2430
	SUN	E.	101 8 40	2681	99 31 35	2696	97 54 50	2710	96 18 24	2725
4	<i>a</i> Arietis	W.	67 41 25	2532	69 21 53	2544	71 2 5	2556	72 42 0	2568
	Aldebaran	W.	34 9 35	2489	35 51 4	2501	37 32 16	2512	39 13 12	2524
	Regulus	E.	45 58 58	2507	44 17 54	2523	42 37 13	2540	40 56 55	2556
	SUN	E.	88 21 4	2798	86 46 34	2813	85 12 23	2827	83 38 30	2842
5	<i>a</i> Arietis	W.	80 57 28	2628	82 35 44	2640	84 13 44	2652	85 51 28	2665
	Aldebaran	W.	47 33 44	2584	49 13 2	2596	50 52 3	2607	52 30 48	2619
	Regulus	E.	32 41 11	2645	31 3 16	2665	29 25 49	2686	27 48 49	2707
	SUN	E.	75 53 39	2911	74 21 34	2924	72 49 46	2937	71 18 15	2950
6	<i>a</i> Arietis	W.	93 56 7	2723	95 32 16	2735	97 8 10	2746	98 43 49	2757
	Aldebaran	W.	60 40 37	2675	62 17 50	2686	63 54 48	2696	65 31 33	2707
	SUN	E.	63 44 43	3014	62 14 48	3026	60 45 7	3038	59 15 41	3050
7	<i>a</i> Arietis	W.	106 38 26	2812	108 12 38	2823	109 46 36	2834	111 20 20	2844
	Aldebaran	W.	73 31 47	2758	75 7 10	2767	76 42 21	2776	78 17 20	2785
	Pollux	W.	32 37 38	3056	34 6 41	3042	35 36 2	3030	37 5 37	3021
	SUN	E.	51 52 6	3106	50 24 4	3116	48 56 14	3127	47 28 37	3138
8	Aldebaran	W.	86 9 16	2830	87 43 5	2838	89 16 43	2846	90 50 11	2854
	Pollux	W.	44 35 37	3001	46 5 49	3001	47 36 1	3000	49 6 14	3000
	SUN	E.	40 13 37	3188	38 47 13	3197	37 21 0	3207	35 54 59	3216
9	Aldebaran	W.	98 34 57	2893	100 7 25	2900	101 39 43	2907	103 11 53	2914
	Pollux	W.	56 36 53	3011	58 6 52	3014	59 36 47	3018	61 6 38	3022
	SUN	E.	28 47 38	3262	27 22 42	3272	25 57 58	3282	24 33 25	3291
13	SUN	W.	15 50 10	3476	17 11 2	3472	18 31 58	3471	19 52 54	3471
	<i>a</i> Aquilæ	E.	85 40 14	3459	84 19 4	3464	82 57 59	3469	81 37 0	3475
14	SUN	W.	26 37 47	3470	27 58 45	3471	29 19 42	3470	30 40 40	3470
	JUPITER	E.	48 43 12	3146	47 15 58	3148	45 48 47	3151	44 21 39	3153
	SATURN	E.	52 58 15	3111	51 30 19	3113	50 2 25	3115	48 34 34	3117
	<i>a</i> Aquilæ	E.	74 53 50	3508	73 33 35	3517	72 13 30	3526	70 53 34	3535
15	SUN	W.	37 25 36	3466	38 46 38	3465	40 7 40	3463	41 28 45	3462
	JUPITER	E.	37 6 39	3163	35 39 46	3166	34 12 56	3168	32 46 9	3170

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
15	SATURN E.	47 6 45	3119	45 38 59	3120	44 11 14	3122	42 43 31	3123
	<i>α</i> Aquilæ E.	69 33 48	3544	68 14 12	3554	66 54 47	3565	65 35 33	3576
	Fomalhaut E.	98 45 6	3555	97 25 43	3554	96 6 18	3552	94 46 51	3549
16	SUN W.	42 49 52	3460	44 11 1	3457	45 32 13	3454	46 53 29	3451
	JUPITER E.	31 19 24	3173	29 52 42	3175	28 26 3	3178	26 59 28	3182
	SATURN E.	35 25 15	3128	33 57 39	3129	32 30 4	3130	31 2 30	3131
	<i>α</i> Aquilæ E.	59 2 48	3645	57 45 1	3662	56 27 33	3680	55 10 24	3699
	Fomalhaut E.	88 9 3	3542	86 49 25	3542	85 29 47	3541	84 10 8	3540
	<i>α</i> Pegasi E.	105 14 12	3240	103 48 50	3236	102 23 23	3232	100 57 52	3228
17	SUN W.	53 40 49	3430	55 2 32	3424	56 24 21	3418	57 46 17	3411
	MARS W.	15 22 9	3365	16 45 5	3354	18 8 14	3344	19 31 35	3333
	<i>α</i> Aquilæ E.	48 50 28	3826	47 35 54	3859	46 21 53	3896	45 8 30	3936
	Fomalhaut E.	77 31 55	3544	76 12 19	3545	74 52 45	3547	73 33 13	3550
	<i>α</i> Pegasi E.	93 48 56	3204	92 22 52	3198	90 56 41	3193	89 30 24	3188
18	SUN W.	64 37 56	3374	66 0 42	3365	67 23 39	3356	68 46 46	3346
	MARS W.	26 31 20	3283	27 55 51	3273	29 20 34	3262	30 45 30	3252
	Fomalhaut E.	66 56 22	3569	65 37 14	3575	64 18 12	3581	62 59 17	3589
	<i>α</i> Pegasi E.	82 17 13	3157	80 50 13	3150	79 23 4	3143	77 55 47	3136
19	SUN W.	75 45 22	3290	77 9 45	3278	78 34 22	3265	79 59 14	3252
	MARS W.	37 53 20	3194	39 19 36	3182	40 46 7	3169	42 12 54	3156
	Antares W.	33 54 49	3017	35 24 41	2999	36 54 55	2981	38 25 32	2963
	Fomalhaut E.	56 27 9	3645	55 9 23	3662	53 51 55	3680	52 34 47	3700
	<i>α</i> Pegasi E.	70 37 10	3099	69 8 59	3091	67 40 39	3084	66 12 10	3076
	<i>α</i> Arietis E.	113 51 0	2989	112 20 34	2976	110 49 51	2963	109 18 52	2950
20	SUN W.	87 7 40	3179	88 34 14	3163	90 1 7	3147	91 28 20	3130
	MARS W.	49 30 55	3083	50 59 25	3068	52 28 14	3052	53 57 22	3035
	Antares W.	46 4 8	2877	47 36 56	2859	49 10 7	2842	50 43 41	2825
	JUPITER W.	17 15 13	3003	18 45 22	2974	20 16 7	2944	21 47 30	2915
	SATURN W.	13 30 45	3030	15 0 20	2986	16 30 50	2946	18 2 10	2909
	Fomalhaut E.	46 15 37	3855	45 1 31	3900	43 48 11	3950	42 35 41	4007
	<i>α</i> Pegasi E.	58 47 22	3039	57 17 57	3032	55 48 24	3026	54 18 43	3021
	<i>α</i> Arietis E.	101 39 36	2879	100 6 50	2863	98 33 44	2848	97 0 19	2832
21	SUN W.	98 49 34	3043	100 18 54	3024	101 48 37	3005	103 18 44	2986
	MARS W.	61 28 17	2950	62 59 33	2931	64 31 12	2912	66 3 15	2894
	Antares W.	58 37 13	2735	60 13 7	2716	61 49 25	2698	63 26 8	2679
	JUPITER W.	29 32 58	2794	31 7 34	2772	32 42 40	2750	34 18 13	2729
	SATURN W.	25 49 10	2771	27 24 16	2748	28 59 52	2726	30 35 57	2704
	<i>α</i> Pegasi E.	46 48 53	3005	45 18 46	3005	43 48 40	3008	42 18 37	3013
	<i>α</i> Arietis E.	89 8 0	2751	87 32 28	2734	85 56 33	2717	84 20 15	2700
22	SUN W.	110 55 22	2887	112 27 57	2866	114 0 59	2846	115 34 27	2826
	MARS W.	73 49 36	2798	75 24 7	2778	76 59 5	2758	78 34 28	2738
	Antares W.	71 36 5	2583	73 15 23	2564	74 55 7	2545	76 35 18	2525
	JUPITER W.	42 22 55	2626	44 1 15	2605	45 40 3	2585	47 19 19	2564
	SATURN W.	38 43 39	2598	40 22 37	2578	42 2 2	2557	43 41 56	2536
	<i>α</i> Arietis E.	76 12 53	2611	74 34 13	2593	72 55 8	2575	71 15 39	2558

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
15	SATURN E.	41 15 49	3124	39 48 9	3125	38 20 30	3126	36 52 52	3127
	α Aquilæ E.	64 16 32	3588	62 57 44	3600	61 39 10	3614	60 20 51	3629
	Fomalhaut E.	93 27 21	3547	92 7 49	3545	90 48 15	3544	89 28 40	3543
16	SUN W.	48 14 48	3447	49 36 11	3443	50 57 38	3438	52 19 11	3434
	JUPITER E.	25 32 57	3188	24 6 33	3193	22 40 16	3199	21 14 6	3206
	SATURN E.	29 34 58	3133	28 7 28	3134	26 40 0	3136	25 12 34	3138
	α Aquilæ E.	53 53 36	3720	52 37 10	3744	51 21 9	3769	50 5 34	3796
	Fomalhaut E.	82 50 28	3541	81 30 49	3541	80 11 10	3542	78 51 32	3543
	α Pegasi E.	99 32 16	3223	98 6 34	3219	96 40 47	3214	95 14 54	3209
17	SUN W.	59 8 21	3405	60 30 32	3398	61 52 51	3390	63 15 19	3382
	MARS W.	20 55 8	3322	22 18 54	3312	23 42 51	3302	25 7 0	3293
	α Aquilæ E.	43 55 47	3981	42 43 49	4031	41 32 40	4086	40 22 25	4147
	Fomalhaut E.	72 13 44	3553	70 54 18	3556	69 34 55	3560	68 15 36	3564
	α Pegasi E.	88 4 0	3182	86 37 29	3176	85 10 51	3170	83 44 6	3163
18	SUN W.	70 10 5	3336	71 33 35	3325	72 57 18	3314	74 21 14	3302
	MARS W.	32 10 38	3242	33 35 58	3231	35 1 31	3219	36 27 18	3206
	Fomalhaut E.	61 40 30	3598	60 21 53	3608	59 3 26	3618	57 45 11	3630
	α Pegasi E.	76 28 21	3129	75 0 47	3122	73 33 4	3114	72 5 12	3106
19	SUN W.	81 24 22	3238	82 49 46	3224	84 15 26	3209	85 41 24	3194
	MARS W.	43 39 56	3142	45 7 15	3128	46 34 50	3114	48 2 43	3098
	Antares W.	39 56 32	2946	41 27 53	2928	42 59 36	2911	44 31 41	2894
	Fomalhaut E.	51 18 0	3724	50 1 38	3751	48 45 45	3781	47 30 23	3816
	α Pegasi E.	64 43 31	3068	63 14 42	3061	61 45 45	3053	60 16 38	3046
	α Arietis E.	107 47 36	2936	106 16 3	2922	104 44 12	2908	103 12 3	2894
20	SUN W.	92 55 53	3113	94 23 46	3096	95 52 0	3078	97 20 36	3060
	MARS W.	55 26 51	3019	56 56 40	3002	58 26 51	2985	59 57 23	2967
	Antares W.	52 17 37	2807	53 51 56	2789	55 26 38	2771	57 1 44	2753
	JUPITER W.	23 19 30	2888	24 52 6	2863	26 25 14	2839	27 58 51	2816
	SATURN W.	19 34 17	2876	21 7 7	2846	22 40 35	2820	24 14 37	2796
	Fomalhaut E.	41 24 8	4072	40 13 39	4147	39 4 23	4233	37 56 28	4330
	α Pegasi E.	52 48 56	3015	51 19 2	3011	49 49 2	3008	48 18 59	3006
	α Arietis E.	95 26 33	2816	93 52 26	2801	92 17 59	2784	90 43 10	2768
21	SUN W.	104 49 14	2966	106 20 9	2947	107 51 28	2927	109 23 12	2907
	MARS W.	67 35 42	2875	69 8 34	2856	70 41 49	2836	72 15 30	2817
	Antares W.	65 3 16	2660	66 40 50	2641	68 18 48	2622	69 57 13	2602
	JUPITER W.	35 54 14	2708	37 30 43	2688	39 7 39	2667	40 45 4	2647
	SATURN W.	32 12 32	2682	33 49 36	2661	35 27 8	2640	37 5 9	2618
	α Pegasi E.	40 48 40	3021	39 18 53	3031	37 49 19	3045	36 20 3	3064
	α Arietis E.	82 43 34	2681	81 6 29	2664	79 29 1	2646	77 51 9	2629
22	SUN W.	117 8 21	2805	118 42 42	2785	120 17 30	2764	121 52 45	2743
	MARS W.	80 10 18	2717	81 46 35	2697	83 23 19	2677	85 0 30	2657
	Antares W.	78 15 56	2505	79 57 2	2486	81 38 34	2467	83 20 34	2448
	JUPITER W.	48 59 3	2544	50 39 15	2524	52 19 55	2504	54 1 3	2484
	SATURN W.	45 22 19	2515	47 3 11	2495	48 44 30	2475	50 26 18	2455
	α Arietis E.	69 35 46	2540	67 55 29	2522	66 14 47	2505	64 33 41	2488

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.		P. L. of Diff.	VIh.		P. L. of Diff.	IXh.		P. L. of Diff.
			° ' "		° ' "			° ' "			° ' "		
23	SUN	W.	123 28 28	2723	125 4 37	2702	126 41 14	2682	128 18 17	2662			
	MARS	W.	86 38 7	2637	88 16 12	2617	89 54 43	2597	91 33 42	2577			
	Antares	W.	85 3 0	2429	86 45 54	2409	88 29 16	2390	90 13 5	2372			
	JUPITER	W.	55 42 39	2464	57 24 44	2444	59 7 16	2424	60 50 16	2405			
	SATURN	W.	52 8 34	2435	53 51 19	2416	55 34 31	2396	57 18 12	2377			
	α Arietis	E.	62 52 11	2471	61 10 17	2455	59 28 1	2439	57 45 21	2423			
	Aldebaran	E.	95 51 5	2405	94 7 38	2386	92 23 43	2367	90 39 21	2348			
24	MARS	W.	99 55 19	2482	101 36 58	2461	103 19 2	2446	105 1 32	2429			
	Antares	W.	98 58 48	2281	100 45 15	2264	102 32 8	2247	104 19 25	2231			
	JUPITER	W.	69 32 10	2311	71 17 54	2293	73 4 4	2275	74 50 40	2258			
	SATURN	W.	66 3 30	2283	67 49 55	2264	69 36 47	2247	71 24 5	2231			
	α Arietis	E.	49 6 40	2353	47 21 58	2342	45 37 0	2331	43 51 46	2322			
	Aldebaran	E.	81 50 45	2258	80 3 43	2240	78 16 14	2223	76 28 20	2206			
25	JUPITER	W.	83 49 51	2179	85 38 51	2165	87 28 12	2151	89 17 54	2137			
	SATURN	W.	80 26 43	2151	82 16 25	2137	84 6 28	2123	85 56 52	2109			
	Aldebaran	E.	67 22 45	2129	65 32 29	2115	63 41 52	2101	61 50 54	2088			
	Pollux	E.	109 40 22	2220	107 52 24	2204	106 4 2	2188	104 15 17	2174			
26	JUPITER	W.	98 31 4	2082	100 22 31	2073	102 14 12	2065	104 6 6	2057			
	SATURN	W.	95 13 36	2054	97 5 46	2045	98 58 11	2037	100 50 49	2030			
	Aldebaran	E.	52 31 32	2035	50 38 52	2026	48 45 58	2018	46 52 52	2011			
	Pollux	E.	95 6 26	2113	93 15 47	2103	91 24 53	2095	89 33 46	2088			
27	JUPITER	W.	113 28 5	2032	115 20 49	2030	117 13 37	2028	119 6 28	2027			
	SATURN	W.	110 16 26	2003	112 9 56	2001	114 3 28	1999	115 57 4	1998			
	Fomalhaut	W.	61 47 51	2585	63 27 7	2561	65 6 56	2540	66 47 14	2522			
	α Pegasi	W.	42 41 53	2313	44 27 34	2286	46 13 54	2264	48 0 46	2246			
	Pollux	E.	80 15 45	2064	78 23 50	2062	76 31 52	2061	74 39 53	2061			
	Regulus	E.	116 54 31	1996	115 0 51	1993	113 7 5	1990	111 13 14	1988			
28	Fomalhaut	W.	75 13 44	2470	76 55 40	2466	78 37 41	2463	80 19 47	2462			
	α Pegasi	W.	57 0 45	2189	58 49 28	2184	60 38 21	2180	62 27 19	2178			
	Pollux	E.	65 20 39	2080	63 29 9	2087	61 37 49	2095	59 46 42	2105			
	Regulus	E.	101 43 41	1991	99 49 52	1994	97 56 8	1998	96 2 30	2002			
29	Fomalhaut	W.	88 49 38	2486	90 31 12	2495	92 12 32	2506	93 53 37	2518			
	α Pegasi	W.	71 32 11	2189	73 20 55	2194	75 9 31	2201	76 57 57	2210			
	Pollux	E.	50 35 31	2174	48 46 24	2192	46 57 45	2212	45 9 36	2235			
	Regulus	E.	86 36 36	2038	84 44 1	2048	82 51 41	2057	80 59 36	2068			
30	Fomalhaut	W.	102 13 59	2604	103 52 48	2626	105 31 8	2649	107 8 57	2674			
	α Pegasi	W.	85 56 36	2264	87 43 29	2277	89 30 3	2291	91 16 16	2305			
	α Arietis	W.	42 19 40	2231	44 7 22	2237	45 54 55	2244	47 42 18	2252			
	Regulus	E.	71 43 37	2131	69 53 25	2145	68 3 35	2160	66 14 7	2175			
31	α Pegasi	W.	100 1 40	2389	101 45 30	2408	103 28 53	2427	105 11 49	2447			
	α Arietis	W.	56 35 34	2309	58 21 21	2322	60 6 48	2336	61 51 56	2350			
	Aldebaran	W.	22 55 40	2269	24 42 25	2282	26 28 51	2295	28 14 58	2308			
	Regulus	E.	57 12 42	2258	55 25 40	2276	53 39 5	2294	51 52 56	2313			
	SUN	E.	125 53 40	2540	124 13 23	2558	122 33 31	2576	120 54 3	2594			

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
23	SUN W.	129 55 48	2642	131 33 46	2622	133 12 11	2602	134 51 3	2583
	MARS W.	93 13 8	2558	94 53 1	2539	96 33 20	2520	98 14 6	2501
	Antares W.	91 57 20	2353	93 42 2	2335	95 27 11	2317	97 12 46	2299
	JUPITER W.	62 33 44	2385	64 17 40	2366	66 2 3	2348	67 46 53	2329
	SATURN W.	59 2 20	2357	60 46 56	2338	62 32 0	2319	64 17 32	2301
	α Arietis E.	56 2 19	2408	54 18 55	2393	52 35 10	2379	50 51 5	2365
	Aldebaran E.	88 54 32	2329	87 9 15	2311	85 23 31	2293	83 37 21	2275
24	MARS W.	106 44 26	2411	108 27 46	2394	110 11 29	2378	111 55 36	2362
	Antares W.	106 7 7	2215	107 55 12	2200	109 43 40	2184	111 32 31	2170
	JUPITER W.	76 37 42	2241	78 25 8	2225	80 12 59	2209	82 1 13	2193
	SATURN W.	73 11 47	2214	74 59 55	2197	76 48 27	2181	78 37 23	2166
	α Arietis E.	42 6 19	2315	40 20 41	2310	38 34 56	2306	36 49 5	2304
	Aldebaran E.	74 40 1	2189	72 51 17	2174	71 2 10	2158	69 12 39	2143
25	JUPITER W.	91 7 56	2125	92 58 17	2113	94 48 56	2102	96 39 52	2092
	SATURN W.	87 47 37	2097	89 38 40	2085	91 30 2	2074	93 21 41	2064
	Aldebaran E.	59 59 37	2076	58 8 1	2065	56 16 8	2054	54 23 58	2044
	Pollux E.	102 26 10	2160	100 36 42	2147	98 46 55	2135	96 56 49	2124
26	JUPITER W.	105 58 12	2050	107 50 28	2044	109 42 53	2039	111 35 26	2035
	SATURN W.	102 43 37	2023	104 36 37	2017	106 29 46	2012	108 23 3	2007
	Aldebaran E.	44 59 35	2005	43 6 9	2000	41 12 35	1996	39 18 55	1993
	Pollux E.	87 42 28	2081	85 50 59	2075	83 59 21	2070	82 7 36	2066
27	JUPITER W.	120 59 20	2028	122 52 11	2029	124 45 1	2031	126 37 47	2033
	SATURN W.	117 50 42	1999	119 44 19	2000	121 37 54	2001	123 31 27	2002
	Fomalhaut W.	68 27 57	2507	70 9 0	2494	71 50 20	2484	73 31 56	2476
	α Pegasi W.	49 48 5	2230	51 35 48	2216	53 23 51	2205	55 12 11	2196
	Pollux E.	72 47 54	2063	70 55 57	2066	69 4 5	2069	67 12 18	2074
	Regulus E.	109 19 21	1987	107 25 26	1986	105 31 30	1986	103 37 34	1988
28	Fomalhaut W.	82 1 54	2464	83 43 58	2467	85 25 58	2471	87 7 52	2477
	α Pegasi W.	64 16 20	2178	66 5 21	2179	67 54 21	2181	69 43 18	2185
	Pollux E.	57 55 51	2116	56 5 16	2128	54 14 59	2142	52 25 3	2157
	Regulus E.	94 8 59	2008	92 15 37	2015	90 22 26	2022	88 29 25	2030
29	Fomalhaut W.	95 34 25	2533	97 14 53	2548	98 54 59	2565	100 34 42	2584
	α Pegasi W.	78 46 10	2219	80 34 9	2229	82 21 54	2239	84 9 24	2251
	Pollux E.	43 22 0	2260	41 35 1	2287	39 48 42	2316	38 3 6	2348
	Regulus E.	79 7 47	2080	77 16 16	2092	75 25 4	2104	73 34 11	2117
30	Fomalhaut W.	108 46 12	2701	110 22 52	2729	111 58 54	2759	113 34 16	2789
	α Pegasi W.	93 2 8	2321	94 47 37	2337	96 32 42	2354	98 17 23	2371
	α Arietis W.	49 29 28	2262	51 16 24	2273	53 3 4	2284	54 49 28	2296
	Regulus E.	64 25 1	2190	62 36 19	2207	60 48 2	2224	59 0 9	2241
31	α Pegasi W.	106 54 20	2467	108 36 18	2488	110 17 48	2509	111 58 49	2530
	α Arietis W.	63 36 43	2365	65 21 8	2380	67 5 11	2396	68 48 52	2412
	Aldebaran W.	30 0 46	2322	31 46 14	2336	33 31 21	2351	35 16 6	2367
	Regulus E.	50 7 15	2331	48 22 1	2350	46 37 15	2370	44 52 57	2390
	SUN E.	119 15 0	2613	117 36 22	2632	115 58 10	2650	114 20 22	2668

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.		Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Apparent Time.		Diff. for 1 Hour.		
		h m s	s	° ' "	"	' "	s	m s	s		
Frid.	1	14 23 56.27	9.780	S. 14 17 56.6	-48.35	16 8.38	66.80	16 19.63	0.076		
Sat.	2	14 27 51.39	9.814	14 37 10.0	47.77	16 8.63	66.92	16 21.06	0.042		
SUN.	3	14 31 47.34	9.848	14 56 9.6	47.17	16 8.88	67.03	16 21.66	0.007		
Mon.	4	14 35 44.13	9.883	15 14 54.6	-46.56	16 9.12	67.15	16 21.43	0.027		
Tues.	5	14 39 41.76	9.919	15 33 24.5	45.93	16 9.36	67.26	16 20.36	0.062		
Wed.	6	14 43 40.23	9.954	15 51 39.1	45.28	16 9.60	67.38	16 18.45	0.097		
Thur.	7	14 47 39.55	9.989	16 9 38.0	-44.61	16 9.84	67.50	16 15.69	0.133		
Frid.	8	14 51 39.74	10.025	16 27 20.5	43.93	16 10.07	67.62	16 12.08	0.168		
Sat.	9	14 55 40.77	10.060	16 44 46.5	43.23	16 10.30	67.74	16 7.61	0.204		
SUN.	10	14 59 42.65	10.096	17 1 55.6	-42.51	16 10.53	67.86	16 2.30	0.240		
Mon.	11	15 3 45.39	10.132	17 18 47.1	41.78	16 10.76	67.98	15 56.14	0.275		
Tues.	12	15 7 48.98	10.168	17 35 21.2	41.03	16 10.98	68.10	15 49.11	0.310		
Wed.	13	15 11 53.41	10.203	17 51 36.4	-40.26	16 11.20	68.22	15 41.25	0.345		
Thur.	14	15 15 58.69	10.238	18 7 33.1	39.47	16 11.42	68.34	15 32.55	0.380		
Frid.	15	15 20 4.82	10.273	18 23 10.9	38.67	16 11.64	68.46	15 23.00	0.415		
Sat.	16	15 24 11.77	10.308	18 38 29.0	-37.85	16 11.85	68.58	15 12.63	0.450		
SUN.	17	15 28 19.56	10.342	18 53 27.6	37.02	16 12.06	68.70	15 1.42	0.484		
Mon.	18	15 32 28.18	10.376	19 8 5.8	36.17	16 12.26	68.81	14 49.40	0.518		
Tues.	19	15 36 37.60	10.410	19 22 23.3	-35.30	16 12.46	68.93	14 36.58	0.551		
Wed.	20	15 40 47.84	10.443	19 36 20.0	34.41	16 12.66	69.04	14 22.94	0.585		
Thur.	21	15 44 58.88	10.476	19 49 55.2	33.51	16 12.86	69.15	14 8.50	0.618		
Frid.	22	15 49 10.69	10.509	20 3 8.8	-32.60	16 13.05	69.26	13 53.28	0.651		
Sat.	23	15 53 23.29	10.541	20 16 0.2	31.67	16 13.24	69.37	13 37.29	0.683		
SUN.	24	15 57 36.66	10.573	20 28 29.2	30.73	16 13.42	69.47	13 20.52	0.715		
Mon.	25	16 1 50.79	10.605	20 40 35.5	-29.78	16 13.60	69.58	13 2.98	0.746		
Tues.	26	16 6 5.68	10.636	20 52 18.7	28.81	16 13.78	69.68	12 44.69	0.778		
Wed.	27	16 10 21.32	10.667	21 3 38.4	27.83	16 13.95	69.79	12 25.66	0.809		
Thur.	28	16 14 37.70	10.698	21 14 34.4	-26.83	16 14.12	69.89	12 5.89	0.839		
Frid.	29	16 18 54.82	10.728	21 25 6.5	25.82	16 14.28	69.99	11 45.39	0.869		
Sat.	30	16 23 12.64	10.757	21 35 14.1	24.80	16 14.44	70.08	11 24.18	0.898		
SUN.	31	16 27 31.16	10.785	S. 21 44 56.9	-23.77	16 14.59	70.17	11 2.28	0.926		

NOTE.—The mean time of semidiameter passing may be found by subtracting 0°.19 from the sidereal time.

The sign — prefixed to the hourly change of declination indicates that south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ' "	"	m s	s	h m s
Frid.	1	14 23 58.94	+ 9.781	S. 14 18 9.8	- 48.34	16 19.65	+ 0.076	14 40 18.59
Sat.	2	14 27 54.07	9.815	14 37 23.3	47.76	16 21.07	0.042	14 44 15.14
SUN.	3	14 31 50.03	9.849	14 56 22.5	47.16	16 21.66	+ 0.007	14 48 11.70
Mon.	4	14 35 46.83	+ 9.884	15 15 7.3	- 46.55	16 21.42	- 0.027	14 52 8.25
Tues.	5	14 39 44.46	9.919	15 33 37.0	45.92	16 20.34	0.062	14 56 4.80
Wed.	6	14 43 42.94	9.954	15 51 51.4	45.27	16 18.42	0.097	15 0 1.36
Thur.	7	14 47 42.26	+ 9.989	16 9 50.1	- 44.60	16 15.65	- 0.133	15 3 57.91
Frid.	8	14 51 42.44	10.025	16 27 32.4	43.92	16 12.03	0.168	15 7 54.47
Sat.	9	14 55 43.47	10.060	16 44 58.1	43.22	16 7.56	0.204	15 11 51.02
SUN.	10	14 59 45.34	+ 10.096	17 2 7.0	- 42.50	16 2.24	- 0.240	15 15 47.58
Mon.	11	15 3 48.08	10.131	17 18 58.3	41.76	15 56.06	0.275	15 19 44.13
Tues.	12	15 7 51.66	10.167	17 35 31.7	41.01	15 49.03	0.310	15 23 40.69
Wed.	13	15 11 56.08	+ 10.202	17 51 46.9	- 40.24	15 41.16	- 0.345	15 27 37.24
Thur.	14	15 16 1.35	10.237	18 7 43.3	39.46	15 32.45	0.380	15 31 33.80
Frid.	15	15 20 7.46	10.272	18 23 20.8	38.66	15 22.89	0.415	15 35 30.35
Sat.	16	15 24 14.39	+ 10.306	18 38 38.7	- 37.84	15 12.52	- 0.450	15 39 26.91
SUN.	17	15 28 22.16	10.340	18 53 36.8	37.01	15 1.30	0.484	15 43 23.46
Mon.	18	15 32 30.75	10.374	19 8 14.7	36.16	14 49.27	0.518	15 47 20.02
Tues.	19	15 36 40.14	+ 10.408	19 22 31.9	- 35.29	14 36.44	- 0.551	15 51 16.58
Wed.	20	15 40 50.34	10.442	19 36 28.2	34.40	14 22.80	0.585	15 55 13.13
Thur.	21	15 45 1.34	10.475	19 50 3.1	33.50	14 8.35	0.618	15 59 9.69
Frid.	22	15 49 13.11	+ 10.507	20 3 16.3	- 32.59	13 53.13	- 0.651	16 3 6.24
Sat.	23	15 53 25.67	10.539	20 16 7.4	31.66	13 37.13	0.683	16 7 2.80
SUN.	24	15 57 39.00	10.571	20 28 36.0	30.72	13 20.36	0.715	16 10 59.36
Mon.	25	16 1 53.09	+ 10.603	20 40 42.0	- 29.77	13 2.82	- 0.746	16 14 55.91
Tues.	26	16 6 7.94	10.634	20 52 24.8	28.80	12 44.53	0.778	16 18 52.47
Wed.	27	16 10 23.53	10.665	21 3 44.2	27.82	12 25.49	0.809	16 22 49.02
Thur.	28	16 14 39.86	+ 10.696	21 14 39.8	- 26.82	12 5.72	- 0.839	16 26 45.58
Frid.	29	16 18 56.92	10.726	21 25 11.5	25.81	11 45.22	0.869	16 30 42.14
Sat.	30	16 23 14.68	10.755	21 35 18.8	24.79	11 24.01	0.898	16 34 38.70
SUN.	31	16 27 33.14	+ 10.783	S. 21 45 1.4	- 23.76	11 2.11	- 0.926	16 38 35.25

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
 The sign — prefixed to the hourly change of declination indicates that south declinations are increasing.

Diff. for 1 Hour,
 + 9^s.8565.
 (Table III.)

AT GREENWICH MEAN NOON.											
Day of the Month.	Day of the Year.	THE SUN'S						Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.	
		TRUE LONGITUDE.			Diff. for 1 Hour.	LATITUDE.					
		λ									
		$^{\circ}$	$'$	$''$							
1	305	218	22	43.9	21	51.2	150.15	— 0.99	9.9965623	45.7	9 18 9.72
2	306	219	22	48.6	21	55.9	150.24	1.05	9.9964531	45.2	9 14 13.81
3	307	220	22	55.6	22	2.7	150.33	1.08	9.9963451	44.8	9 10 17.90
4	308	221	23	4.6	22	11.6	150.42	— 1.09	9.9962381	44.4	9 6 22.00
5	309	222	23	15.8	22	22.7	150.51	1.05	9.9961320	44.0	9 2 26.09
6	310	223	23	29.0	22	35.8	150.59	1.00	9.9960268	43.7	8 58 30.18
7	311	224	23	44.2	22	50.9	150.67	— 0.92	9.9959223	43.4	8 54 34.27
8	312	225	24	1.4	23	7.8	150.75	0.81	9.9958186	43.0	8 50 38.36
9	313	226	24	20.4	23	26.8	150.83	0.70	9.9957157	42.7	8 46 42.45
10	314	227	24	41.3	23	47.5	150.91	— 0.57	9.9956136	42.4	8 42 46.54
11	315	228	25	3.9	24	10.0	150.98	0.45	9.9955121	42.1	8 38 50.63
12	316	229	25	28.2	24	34.2	151.05	0.33	9.9954115	41.8	8 34 54.72
13	317	230	25	54.1	24	59.9	151.11	— 0.22	9.9953117	41.4	8 30 58.82
14	318	231	26	21.5	25	27.2	151.17	0.11	9.9952128	41.0	8 27 2.91
15	319	232	26	50.4	25	56.0	151.23	— 0.03	9.9951148	40.6	8 23 7.00
16	320	233	27	20.7	26	26.1	151.29	+ 0.03	9.9950180	40.1	8 19 11.09
17	321	234	27	52.4	26	57.6	151.35	0.05	9.9949222	39.6	8 15 15.18
18	322	235	28	25.3	27	30.4	151.40	0.06	9.9948278	39.1	8 11 19.27
19	323	236	28	59.4	28	4.4	151.45	+ 0.02	9.9947348	38.4	8 7 23.36
20	324	237	29	34.8	28	39.7	151.50	— 0.05	9.9946434	37.7	8 3 27.45
21	325	238	30	11.4	29	16.1	151.55	0.14	9.9945537	36.9	7 59 31.54
22	326	239	30	49.1	29	53.6	151.60	— 0.25	9.9944660	36.1	7 55 35.63
23	327	240	31	27.9	30	32.3	151.65	0.37	9.9943803	35.2	7 51 39.72
24	328	241	32	8.0	31	12.3	151.70	0.53	9.9942969	34.3	7 47 43.81
25	329	242	32	49.3	31	53.4	151.75	— 0.67	9.9942158	33.3	7 43 47.90
26	330	243	33	31.9	32	35.8	151.80	0.81	9.9941372	32.2	7 39 51.99
27	331	244	34	15.8	33	19.6	151.86	0.93	9.9940611	31.2	7 35 56.08
28	332	245	35	1.2	34	4.8	151.92	— 1.02	9.9939874	30.2	7 32 0.17
29	333	246	35	47.9	34	51.4	151.98	1.09	9.9939160	29.2	7 28 4.25
30	334	247	36	36.1	35	39.4	152.04	1.14	9.9938470	28.3	7 24 8.34
31	335	248	37	25.8	36	28.9	152.10	— 1.14	9.9937801	27.4	7 20 12.43
NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0 ^h .0 of the Besselian fictitious year.											Diff. for 1 Hour, — 9 ^s .8296. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	' "	' "	' "	"	' "	"	h m	m	d
1	16 3.9	15 56.5	58 51.0	- 2.26	58 23.7	- 2.27	17 2.5	+ 2.23	20.0
2	15 49.1	15 41.9	57 56.6	2.23	57 30.1	2.16	17 54.2	2.08	21.0
3	15 34.9	15 28.4	57 4.6	2.07	56 40.5	1.95	18 42.6	1.96	22.0
4	15 22.2	15 16.5	56 17.8	- 1.82	55 56.8	- 1.68	19 28.5	+ 1.87	23.0
5	15 11.2	15 6.5	55 37.6	1.53	55 20.2	1.38	20 12.6	1.82	24.0
6	15 2.3	14 58.5	55 4.6	1.23	54 50.7	1.08	20 55.8	1.79	25.0
7	14 55.2	14 52.3	54 38.6	- 0.94	54 28.2	- 0.80	21 38.8	+ 1.80	26.0
8	14 49.9	14 47.9	54 19.3	0.68	54 12.0	0.55	22 22.4	1.83	27.0
9	14 46.3	14 45.1	54 6.1	0.43	54 1.6	0.32	23 6.9	1.88	28.0
10	14 44.2	14 43.7	53 58.4	- 0.21	53 56.5	- 0.10	23 52.6	+ 1.93	29.0
11	14 43.6	14 43.7	53 55.9	0.00	53 56.5	+ 0.11	0		0.2
12	14 44.2	14 45.1	53 58.4	+ 0.22	54 1.7	0.33	0 39.4	1.97	1.2
13	14 46.4	14 48.1	54 6.4	+ 0.45	54 12.5	+ 0.57	1 27.2	+ 2.00	2.2
14	14 50.1	14 52.6	54 20.1	0.70	54 29.3	0.84	2 15.6	2.02	3.2
15	14 55.6	14 59.1	54 40.3	0.98	54 53.0	1.13	3 4.0	2.02	4.2
16	15 3.0	15 7.5	55 7.5	+ 1.29	55 23.9	+ 1.45	3 52.3	+ 2.00	5.2
17	15 12.5	15 18.0	55 42.3	1.60	56 2.4	1.75	4 40.1	1.99	6.2
18	15 24.0	15 30.4	56 24.4	1.90	56 48.1	2.03	5 27.8	1.99	7.2
19	15 37.3	15 44.5	57 13.3	+ 2.15	57 39.7	+ 2.24	6 15.6	+ 2.01	8.2
20	15 51.9	15 59.5	58 7.0	2.30	58 34.8	2.31	7 4.2	2.06	9.2
21	16 7.0	16 14.4	59 2.5	2.28	59 29.6	2.20	7 54.5	2.14	10.2
22	16 21.5	16 27.9	59 55.5	+ 2.07	60 19.3	+ 1.87	8 47.4	+ 2.26	11.2
23	16 33.7	16 38.5	60 40.5	1.62	60 58.2	1.31	9 43.3	2.40	12.2
24	16 42.3	16 44.7	61 11.9	0.95	61 21.0	+ 0.55	10 42.6	2.53	13.2
25	16 45.9	16 45.6	61 25.2	+ 0.13	61 24.3	- 0.30	11 44.7	+ 2.62	14.2
26	16 44.0	16 41.0	61 18.2	- 0.71	61 7.1	1.11	12 47.9	2.62	15.2
27	16 36.7	16 31.3	60 51.5	1.47	60 31.8	1.78	13 50.1	2.54	16.2
28	16 25.1	16 18.0	60 8.7	- 2.03	59 42.9	- 2.23	14 49.5	+ 2.40	17.2
29	16 10.5	16 2.6	59 15.2	2.36	58 46.3	2.43	15 45.0	2.23	18.2
30	15 54.6	15 46.6	58 16.8	2.45	57 47.5	2.41	16 36.5	2.07	19.2
31	15 38.8	15 31.3	57 18.9	- 2.34	56 51.4	- 2.23	17 24.6	+ 1.95	20.2

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 1.					SUNDAY 3.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	7 5 19.89	2.4138	N. 17 53 10.7	-5.418	0	8 54 36.16	2.1452	N. 11 54 35.7	-9.688
1	7 7 44.55	2.4082	17 47 42.5	5.521	1	8 56 44.72	2.1403	11 45 29.1	9.131
2	7 10 8.87	2.4025	17 42 8.2	5.623	2	8 58 52.99	2.1353	11 36 19.6	9.183
3	7 12 32.85	2.3968	17 36 27.8	5.724	3	9 1 0.96	2.1305	11 27 7.2	9.230
4	7 14 56.48	2.3909	17 30 41.3	5.825	4	9 3 8.65	2.1258	11 17 52.0	9.277
5	7 17 19.76	2.3852	17 24 48.8	5.924	5	9 5 16.05	2.1209	11 8 34.0	9.322
6	7 19 42.70	2.3794	17 18 50.4	6.022	6	9 7 23.16	2.1162	10 59 13.4	9.366
7	7 22 5.29	2.3736	17 12 46.2	6.118	7	9 9 29.99	2.1115	10 49 50.1	9.410
8	7 24 27.53	2.3678	17 6 36.2	6.213	8	9 11 36.54	2.1069	10 40 24.2	9.453
9	7 26 49.42	2.3619	17 0 20.6	6.308	9	9 13 42.82	2.1023	10 30 55.8	9.497
10	7 29 10.96	2.3562	16 53 59.3	6.402	10	9 15 48.82	2.0978	10 21 25.0	9.541
11	7 31 32.16	2.3503	16 47 32.4	6.493	11	9 17 54.55	2.0933	10 11 51.7	9.584
12	7 33 53.00	2.3444	16 41 0.1	6.583	12	9 20 0.01	2.0888	10 2 16.1	9.627
13	7 36 13.49	2.3386	16 34 22.4	6.673	13	9 22 5.21	2.0844	9 52 38.2	9.669
14	7 38 33.63	2.3328	16 27 39.3	6.762	14	9 24 10.14	2.0801	9 42 58.0	9.688
15	7 40 53.43	2.3270	16 20 51.0	6.849	15	9 26 14.82	2.0758	9 33 15.7	9.723
16	7 43 12.87	2.3211	16 13 57.4	6.935	16	9 28 19.24	2.0715	9 23 31.3	9.758
17	7 45 31.96	2.3153	16 6 58.8	7.019	17	9 30 23.40	2.0673	9 13 44.8	9.792
18	7 47 50.71	2.3096	15 59 55.1	7.103	18	9 32 27.32	2.0633	9 3 56.2	9.826
19	7 50 9.11	2.3038	15 52 46.4	7.186	19	9 34 30.99	2.0592	8 54 5.7	9.859
20	7 52 27.16	2.2979	15 45 32.8	7.268	20	9 36 34.42	2.0551	8 44 13.3	9.888
21	7 54 44.86	2.2921	15 38 14.3	7.348	21	9 38 37.60	2.0511	8 34 19.1	9.919
22	7 57 2.21	2.2863	15 30 51.1	7.426	22	9 40 40.55	2.0472	8 24 23.0	9.949
23	7 59 19.22	2.2807	N. 15 23 23.2	-7.504	23	9 42 43.26	2.0433	N. 8 14 25.2	-9.978
SATURDAY 2.					MONDAY 4.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	8 1 35.89	2.2749	N. 15 15 50.6	-7.581	0	9 44 45.74	2.0394	N. 8 4 25.7	-10.006
1	8 3 52.21	2.2692	15 8 13.5	7.656	1	9 46 47.99	2.0357	7 54 24.5	10.033
2	8 6 8.19	2.2634	15 0 31.9	7.730	2	9 48 50.02	2.0320	7 44 21.8	10.058
3	8 8 23.82	2.2578	14 52 45.9	7.803	3	9 50 51.83	2.0283	7 34 17.5	10.084
4	8 10 39.12	2.2522	14 44 55.5	7.876	4	9 52 53.42	2.0247	7 24 11.7	10.109
5	8 12 54.08	2.2465	14 37 0.8	7.947	5	9 54 54.79	2.0211	7 14 4.4	10.133
6	8 15 8.70	2.2408	14 29 1.9	8.016	6	9 56 55.95	2.0176	7 3 55.8	10.155
7	8 17 22.98	2.2353	14 20 58.9	8.084	7	9 58 56.90	2.0142	6 53 45.8	10.178
8	8 19 36.93	2.2298	14 12 51.8	8.153	8	10 0 57.65	2.0108	6 43 34.5	10.199
9	8 21 50.55	2.2243	14 4 40.6	8.219	9	10 2 58.20	2.0074	6 33 21.9	10.220
10	8 24 3.84	2.2187	13 56 25.5	8.284	10	10 4 58.54	2.0041	6 23 8.1	10.239
11	8 26 16.79	2.2132	13 48 6.5	8.348	11	10 6 58.69	2.0009	6 12 53.2	10.258
12	8 28 29.42	2.2078	13 39 43.7	8.412	12	10 8 58.65	1.9978	6 2 37.2	10.275
13	8 30 41.72	2.2023	13 31 17.1	8.473	13	10 10 58.42	1.9946	5 52 20.2	10.293
14	8 32 53.70	2.1970	13 22 46.9	8.534	14	10 12 58.00	1.9915	5 42 2.1	10.309
15	8 35 5.36	2.1916	13 14 13.0	8.594	15	10 14 57.40	1.9886	5 31 43.1	10.325
16	8 37 16.69	2.1863	13 5 35.6	8.653	16	10 16 56.63	1.9857	5 21 23.1	10.340
17	8 39 27.71	2.1811	12 56 54.7	8.711	17	10 18 55.68	1.9827	5 11 2.3	10.354
18	8 41 38.42	2.1758	12 48 10.3	8.768	18	10 20 54.55	1.9798	5 0 40.6	10.368
19	8 43 48.81	2.1706	12 39 22.6	8.823	19	10 22 53.26	1.9771	4 50 18.2	10.380
20	8 45 58.89	2.1654	12 30 31.6	8.878	20	10 24 51.80	1.9743	4 39 55.0	10.392
21	8 48 8.66	2.1603	12 21 37.3	8.931	21	10 26 50.18	1.9717	4 29 31.1	10.403
22	8 50 18.13	2.1553	12 12 39.9	8.983	22	10 28 48.40	1.9690	4 19 6.6	10.413
23	8 52 27.30	2.1503	12 3 39.3	9.035	23	10 30 46.46	1.9664	4 8 41.5	10.423
24	8 54 36.16	2.1452	N. 11 54 35.7	-9.085	24	10 32 44.37	1.9639	N. 3 58 15.8	-10.433

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 5.					THURSDAY 7.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	10 32 44.37	1.9639	N. 3 58 15.8	-10.433	0	12 5 6.87	1.9045	S. 4 19 48.5	-10.071
1	10 34 42.13	1.9615	3 47 49.6	10.440	1	12 7 1.14	1.9044	4 29 52.1	10.048
2	10 36 39.75	1.9591	3 37 23.0	10.448	2	12 8 55.40	1.9044	4 39 54.3	10.024
3	10 38 37.22	1.9567	3 26 55.9	10.455	3	12 10 49.67	1.9045	4 49 55.0	10.000
4	10 40 34.55	1.9543	3 16 28.4	10.461	4	12 12 43.94	1.9045	4 59 54.3	9.975
5	10 42 31.74	1.9521	3 6 0.6	10.466	5	12 14 38.21	1.9046	5 9 52.0	9.949
6	10 44 28.80	1.9499	2 55 32.5	10.471	6	12 16 32.49	1.9048	5 19 48.2	9.924
7	10 46 25.73	1.9478	2 45 4.1	10.475	7	12 18 26.79	1.9051	5 29 42.9	9.897
8	10 48 22.54	1.9458	2 34 35.5	10.478	8	12 20 21.10	1.9053	5 39 35.9	9.870
9	10 50 19.22	1.9437	2 24 6.7	10.481	9	12 22 15.42	1.9055	5 49 27.3	9.842
10	10 52 15.78	1.9418	2 13 37.8	10.483	10	12 24 9.76	1.9058	5 59 17.0	9.813
11	10 54 12.23	1.9398	2 3 8.8	10.484	11	12 26 4.12	1.9063	6 9 4.9	9.784
12	10 56 8.56	1.9379	1 52 39.7	10.485	12	12 27 58.51	1.9067	6 18 51.1	9.755
13	10 58 4.78	1.9361	1 42 10.6	10.484	13	12 29 52.92	1.9071	6 28 35.5	9.724
14	11 0 0.89	1.9343	1 31 41.6	10.483	14	12 31 47.36	1.9076	6 38 18.0	9.693
15	11 1 56.90	1.9327	1 21 12.6	10.482	15	12 33 41.83	1.9082	6 47 58.7	9.662
16	11 3 52.81	1.9310	1 10 43.7	10.480	16	12 35 36.34	1.9088	6 57 37.5	9.630
17	11 5 48.62	1.9294	1 0 15.0	10.477	17	12 37 30.88	1.9093	7 7 14.3	9.598
18	11 7 44.34	1.9278	0 49 46.5	10.473	18	12 39 25.45	1.9098	7 16 49.2	9.564
19	11 9 39.96	1.9263	0 39 18.2	10.469	19	12 41 20.06	1.9106	7 26 22.0	9.530
20	11 11 35.49	1.9248	0 28 50.2	10.464	20	12 43 14.72	1.9113	7 35 52.8	9.497
21	11 13 30.94	1.9235	0 18 22.5	10.459	21	12 45 9.42	1.9120	7 45 21.6	9.462
22	11 15 26.31	1.9222	N. 0 7 55.1	10.453	22	12 47 4.16	1.9128	7 54 48.2	9.425
23	11 17 21.60	1.9208	S. 0 2 31.9	-10.447	23	12 48 58.96	1.9137	S. 8 4 12.6	-9.389
WEDNESDAY 6.					FRIDAY 8.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	11 19 16.81	1.9196	S. 0 12 58.5	-10.439	0	12 50 53.80	1.9145	S. 8 13 34.9	-9.353
1	11 21 11.95	1.9184	0 23 24.6	10.431	1	12 52 48.70	1.9154	8 22 54.9	9.515
2	11 23 7.02	1.9173	0 33 50.2	10.422	2	12 54 43.65	1.9163	8 32 12.7	9.278
3	11 25 2.02	1.9162	0 44 15.2	10.413	3	12 56 38.65	1.9172	8 41 28.2	9.239
4	11 26 56.96	1.9152	0 54 39.7	10.402	4	12 58 33.71	1.9182	8 50 41.4	9.200
5	11 28 51.84	1.9142	1 5 3.5	10.392	5	13 0 28.83	1.9193	8 59 52.2	9.160
6	11 30 46.66	1.9133	1 15 26.7	10.381	6	13 2 24.02	1.9203	9 9 0.6	9.119
7	11 32 41.43	1.9123	1 25 49.2	10.369	7	13 4 19.27	1.9214	9 18 6.5	9.078
8	11 34 36.14	1.9115	1 36 11.0	10.357	8	13 6 14.59	1.9225	9 27 10.0	9.038
9	11 36 30.81	1.9107	1 46 32.0	10.343	9	13 8 9.97	1.9236	9 36 11.0	8.996
10	11 38 25.43	1.9099	1 56 52.2	10.329	10	13 10 5.42	1.9248	9 45 9.5	8.953
11	11 40 20.00	1.9093	2 7 11.5	10.314	11	13 12 0.94	1.9260	9 54 5.3	8.909
12	11 42 14.54	1.9087	2 17 29.9	10.299	12	13 13 56.54	1.9273	10 2 58.6	8.866
13	11 44 9.04	1.9081	2 27 47.4	10.283	13	13 15 52.21	1.9285	10 11 49.2	8.821
14	11 46 3.51	1.9075	2 38 3.9	10.268	14	13 17 47.96	1.9298	10 20 37.1	8.776
15	11 47 57.94	1.9069	2 48 19.5	10.251	15	13 19 43.79	1.9311	10 29 22.3	8.730
16	11 49 52.34	1.9065	2 58 34.0	10.233	16	13 21 39.69	1.9324	10 38 4.7	8.684
17	11 51 46.72	1.9062	3 8 47.4	10.215	17	13 23 35.68	1.9338	10 46 44.4	8.638
18	11 53 41.08	1.9058	3 18 59.8	10.197	18	13 25 31.75	1.9352	10 55 21.2	8.590
19	11 55 35.41	1.9054	3 29 11.0	10.177	19	13 27 27.90	1.9366	11 3 55.2	8.543
20	11 57 29.73	1.9052	3 39 21.0	10.156	20	13 29 24.14	1.9381	11 12 26.3	8.494
21	11 59 24.03	1.9049	3 49 29.7	10.136	21	13 31 20.47	1.9396	11 20 54.5	8.445
22	12 1 18.32	1.9048	3 59 37.3	10.116	22	13 33 16.89	1.9410	11 29 19.7	8.395
23	12 3 12.60	1.9046	4 9 43.6	10.093	23	13 35 13.39	1.9425	11 37 41.9	8.345
24	12 5 6.87	1.9045	S. 4 19 48.5	-10.071	24	13 37 9.99	1.9441	S. 11 46 1.1	-8.294

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 9.					MONDAY 11.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	13 37 9.99	1.9441	S. 11 46 1.1	-8.294	0	15 12 32.30	2.0326	S. 17 14 59.5	-5.208
1	13 39 6.68	1.9456	11 54 17.2	8.243	1	15 14 34.31	2.0345	17 20 9.7	5.132
2	13 41 3.46	1.9473	12 2 30.2	8.191	2	15 16 36.44	2.0364	17 25 15.3	5.054
3	13 43 0.35	1.9489	12 10 40.1	8.138	3	15 18 38.68	2.0383	17 30 16.2	4.977
4	13 44 57.33	1.9504	12 18 46.8	8.085	4	15 20 41.04	2.0402	17 35 12.5	4.898
5	13 46 54.40	1.9520	12 26 50.3	8.031	5	15 22 43.50	2.0420	17 40 4.0	4.819
6	13 48 51.57	1.9538	12 34 50.5	7.977	6	15 24 46.08	2.0438	17 44 50.8	4.741
7	13 50 48.85	1.9554	12 42 47.5	7.923	7	15 26 48.76	2.0457	17 49 32.9	4.662
8	13 52 46.22	1.9571	12 50 41.2	7.867	8	15 28 51.56	2.0475	17 54 10.2	4.582
9	13 54 43.70	1.9588	12 58 31.5	7.811	9	15 30 54.46	2.0493	17 58 42.7	4.501
10	13 56 41.28	1.9605	13 6 18.5	7.755	10	15 32 57.47	2.0511	18 3 10.3	4.420
11	13 58 38.96	1.9623	13 14 2.1	7.698	11	15 35 0.59	2.0529	18 7 33.1	4.340
12	14 0 36.75	1.9641	13 21 42.2	7.640	12	15 37 3.82	2.0547	18 11 51.1	4.258
13	14 2 34.65	1.9658	13 29 18.9	7.582	13	15 39 7.15	2.0564	18 16 4.1	4.176
14	14 4 32.65	1.9676	13 36 52.0	7.523	14	15 41 10.59	2.0582	18 20 12.2	4.093
15	14 6 30.76	1.9694	13 44 21.6	7.465	15	15 43 14.13	2.0598	18 24 15.3	4.010
16	14 8 28.98	1.9713	13 51 47.6	7.403	16	15 45 17.77	2.0616	18 28 13.4	3.928
17	14 10 27.31	1.9731	13 59 10.0	7.343	17	15 47 21.52	2.0633	18 32 6.6	3.844
18	14 12 25.75	1.9749	14 6 28.8	7.283	18	15 49 25.36	2.0649	18 35 54.7	3.760
19	14 14 24.30	1.9767	14 13 43.9	7.221	19	15 51 29.31	2.0666	18 39 37.8	3.676
20	14 16 22.96	1.9786	14 20 55.3	7.159	20	15 53 33.35	2.0682	18 43 15.8	3.591
21	14 18 21.73	1.9805	14 28 3.0	7.097	21	15 55 37.49	2.0698	18 46 48.7	3.506
22	14 20 20.62	1.9824	14 35 6.9	7.033	22	15 57 41.73	2.0714	18 50 16.5	3.421
23	14 22 19.62	1.9843	S. 14 42 7.0	-6.969	23	15 59 46.06	2.0729	S. 18 53 39.2	-3.335
SUNDAY 10.					TUESDAY 12.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	14 24 18.74	1.9863	S. 14 49 3.2	-6.905	0	16 1 50.48	2.0745	S. 18 56 56.7	-3.249
1	14 26 17.97	1.9881	14 55 55.6	6.840	1	16 3 55.00	2.0761	19 0 9.1	3.163
2	14 28 17.31	1.9900	15 2 44.0	6.774	2	16 5 59.61	2.0776	19 3 16.3	3.077
3	14 30 16.77	1.9919	15 9 28.5	6.709	3	16 8 4.31	2.0791	19 6 18.3	2.990
4	14 32 16.34	1.9938	15 16 9.1	6.643	4	16 10 9.10	2.0805	19 9 15.1	2.903
5	14 34 16.03	1.9958	15 22 45.7	6.576	5	16 12 13.97	2.0819	19 12 6.6	2.814
6	14 36 15.84	1.9978	15 29 18.2	6.508	6	16 14 18.93	2.0833	19 14 52.8	2.727
7	14 38 15.76	1.9997	15 35 46.7	6.440	7	16 16 23.97	2.0848	19 17 33.8	2.639
8	14 40 15.80	2.0017	15 42 11.0	6.371	8	16 18 29.10	2.0862	19 20 9.5	2.550
9	14 42 15.96	2.0036	15 48 31.2	6.303	9	16 20 34.31	2.0874	19 22 39.8	2.461
10	14 44 16.23	2.0055	15 54 47.3	6.233	10	16 22 39.59	2.0888	19 25 4.8	2.373
11	14 46 16.62	2.0075	16 0 59.2	6.163	11	16 24 44.96	2.0901	19 27 24.5	2.283
12	14 48 17.13	2.0094	16 7 6.9	6.093	12	16 26 50.40	2.0913	19 29 38.8	2.193
13	14 50 17.75	2.0113	16 13 10.3	6.022	13	16 28 55.92	2.0926	19 31 47.7	2.104
14	14 52 18.49	2.0133	16 19 9.5	5.951	14	16 31 1.51	2.0938	19 33 51.3	2.014
15	14 54 19.35	2.0153	16 25 4.4	5.878	15	16 33 7.17	2.0950	19 35 49.4	1.923
16	14 56 20.32	2.0172	16 30 54.9	5.805	16	16 35 12.91	2.0962	19 37 42.1	1.833
17	14 58 21.41	2.0192	16 36 41.0	5.733	17	16 37 18.71	2.0973	19 39 29.4	1.743
18	15 0 22.62	2.0212	16 42 22.8	5.660	18	16 39 24.58	2.0983	19 41 11.2	1.651
19	15 2 23.95	2.0231	16 48 0.2	5.586	19	16 41 30.51	2.0994	19 42 47.5	1.560
20	15 4 25.39	2.0249	16 53 33.1	5.511	20	16 43 36.51	2.1005	19 44 18.4	1.469
21	15 6 26.94	2.0268	16 59 1.5	5.436	21	16 45 42.57	2.1016	19 45 43.8	1.378
22	15 8 28.61	2.0288	17 4 25.4	5.360	22	16 47 48.70	2.1026	19 47 3.7	1.286
23	15 10 30.40	2.0308	17 9 44.7	5.284	23	16 49 54.88	2.1035	19 48 18.1	1.193
24	15 12 32.30	2.0326	S. 17 14 59.5	-5.208	24	16 52 1.12	2.1044	S. 19 49 26.9	1.101

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 13.					FRIDAY 15.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	16 52 1.12	2.1044	S. 19 49 26.9	-1.101	0	18 33 33.82	2.1162	S. 18 54 43.2	+3.376
1	16 54 7.41	2.1053	19 50 30.2	1.009	1	18 35 40.78	2.1158	18 51 17.9	3.468
2	16 56 13.76	2.1063	19 51 28.0	0.917	2	18 37 47.72	2.1155	18 47 47.1	3.558
3	16 58 20.16	2.1071	19 52 20.2	0.823	3	18 39 54.64	2.1152	18 44 10.9	3.649
4	17 0 26.61	2.1079	19 53 6.8	0.731	4	18 42 1.54	2.1148	18 40 29.2	3.741
5	17 2 33.11	2.1087	19 53 47.9	0.638	5	18 44 8.41	2.1143	18 36 42.0	3.832
6	17 4 39.65	2.1094	19 54 23.4	0.545	6	18 46 15.25	2.1138	18 32 49.4	3.922
7	17 6 46.24	2.1102	19 54 53.3	0.453	7	18 48 22.07	2.1133	18 28 51.4	4.012
8	17 8 52.87	2.1109	19 55 17.7	0.359	8	18 50 28.85	2.1128	18 24 48.0	4.102
9	17 10 59.55	2.1116	19 55 36.4	0.266	9	18 52 35.61	2.1124	18 20 39.2	4.192
10	17 13 6.26	2.1122	19 55 49.6	0.173	10	18 54 42.34	2.1119	18 16 25.0	4.282
11	17 15 13.01	2.1128	19 55 57.1	-0.078	11	18 56 49.04	2.1114	18 12 5.4	4.371
12	17 17 19.80	2.1134	19 55 59.0	+0.015	12	18 58 55.71	2.1109	18 7 40.5	4.459
13	17 19 26.62	2.1140	19 55 55.3	0.108	13	19 1 2.35	2.1103	18 3 10.3	4.548
14	17 21 33.48	2.1145	19 55 46.0	0.203	14	19 3 8.95	2.1098	17 58 34.7	4.637
15	17 23 40.36	2.1150	19 55 31.0	0.297	15	19 5 15.52	2.1093	17 53 53.9	4.724
16	17 25 47.28	2.1155	19 55 10.4	0.390	16	19 7 22.06	2.1087	17 49 7.8	4.813
17	17 27 54.22	2.1159	19 54 44.2	0.483	17	19 9 28.56	2.1081	17 44 16.4	4.900
18	17 30 1.19	2.1163	19 54 12.4	0.578	18	19 11 35.03	2.1076	17 39 19.8	4.988
19	17 32 8.18	2.1167	19 53 34.9	0.672	19	19 13 41.47	2.1070	17 34 17.9	5.074
20	17 34 15.19	2.1170	19 52 51.8	0.765	20	19 15 47.87	2.1063	17 29 10.9	5.161
21	17 36 22.22	2.1173	19 52 3.1	0.859	21	19 17 54.23	2.1058	17 23 58.6	5.248
22	17 38 29.27	2.1177	19 51 8.7	0.953	22	19 20 0.56	2.1052	17 18 41.2	5.333
23	17 40 36.34	2.1179	S. 19 50 8.7	+1.048	23	19 22 6.85	2.1046	S. 17 13 18.6	+5.420
THURSDAY 14.					SATURDAY 16.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	17 42 43.42	2.1182	S. 19 49 3.0	+1.142	0	19 24 13.11	2.1040	S. 17 7 50.8	+5.506
1	17 44 50.52	2.1184	19 47 51.7	1.236	1	19 26 19.33	2.1033	17 2 17.9	5.591
2	17 46 57.63	2.1185	19 46 34.7	1.330	2	19 28 25.51	2.1028	16 56 39.9	5.675
3	17 49 4.74	2.1187	19 45 12.1	1.423	3	19 30 31.66	2.1022	16 50 56.9	5.759
4	17 51 11.87	2.1188	19 43 43.9	1.517	4	19 32 37.77	2.1015	16 45 8.8	5.844
5	17 53 19.00	2.1189	19 42 10.1	1.611	5	19 34 43.84	2.1008	16 39 15.6	5.928
6	17 55 26.14	2.1190	19 40 30.6	1.705	6	19 36 49.87	2.1003	16 33 17.4	6.012
7	17 57 33.28	2.1191	19 38 45.5	1.799	7	19 38 55.87	2.0997	16 27 14.2	6.094
8	17 59 40.43	2.1191	19 36 54.7	1.893	8	19 41 1.83	2.0991	16 21 6.1	6.177
9	18 1 47.57	2.1190	19 34 58.4	1.986	9	19 43 7.76	2.0985	16 14 53.0	6.259
10	18 3 54.71	2.1190	19 32 56.4	2.080	10	19 45 13.65	2.0979	16 8 35.0	6.342
11	18 6 1.85	2.1190	19 30 48.8	2.173	11	19 47 19.51	2.0973	16 2 12.0	6.423
12	18 8 8.99	2.1189	19 28 35.6	2.267	12	19 49 25.33	2.0968	15 55 44.2	6.504
13	18 10 16.12	2.1188	19 26 16.8	2.359	13	19 51 31.12	2.0962	15 49 11.5	6.585
14	18 12 23.24	2.1187	19 23 52.5	2.453	14	19 53 36.87	2.0955	15 42 34.0	6.666
15	18 14 30.36	2.1186	19 21 22.5	2.546	15	19 55 42.58	2.0949	15 35 51.6	6.747
16	18 16 37.47	2.1184	19 18 47.0	2.638	16	19 57 48.26	2.0944	15 29 4.4	6.826
17	18 18 44.57	2.1182	19 16 5.9	2.731	17	19 59 53.91	2.0939	15 22 12.5	6.905
18	18 20 51.65	2.1179	19 13 19.3	2.823	18	20 1 59.53	2.0933	15 15 15.8	6.984
19	18 22 58.72	2.1177	19 10 27.1	2.916	19	20 4 5.11	2.0928	15 8 14.4	7.062
20	18 25 5.77	2.1174	19 7 29.4	3.008	20	20 6 10.66	2.0923	15 1 8.4	7.140
21	18 27 12.81	2.1172	19 4 26.1	3.101	21	20 8 16.18	2.0918	14 53 57.6	7.218
22	18 29 19.83	2.1169	19 1 17.3	3.193	22	20 10 21.67	2.0913	14 46 42.2	7.295
23	18 31 26.84	2.1166	18 58 3.0	3.284	23	20 12 27.13	2.0908	14 39 22.2	7.372
24	18 33 33.82	2.1162	S. 18 54 43.2	+3.376	24	20 14 32.56	2.0903	S. 14 31 57.6	+7.448

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 17.					TUESDAY 19.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	20 14 32.56	2.0903	S. 14 31 57.6	+ 7.448	0	21 54 45.72	2.0975	S. 7 15 53.1	+10.508
1	20 16 37.96	2.0898	14 24 28.4	7.524	1	21 56 51.60	2.0985	7 5 21.2	10.557
2	20 18 43.33	2.0893	14 16 54.7	7.600	2	21 58 57.54	2.0995	6 54 46.3	10.606
3	20 20 48.68	2.0889	14 9 16.4	7.675	3	22 1 3.54	2.1007	6 44 8.5	10.653
4	20 22 54.00	2.0885	14 1 33.7	7.749	4	22 3 9.62	2.1018	6 33 27.9	10.700
5	20 24 59.30	2.0882	13 53 46.5	7.823	5	22 5 15.76	2.1030	6 22 44.5	10.746
6	20 27 4.58	2.0878	13 45 54.9	7.897	6	22 7 21.98	2.1043	6 11 58.4	10.791
7	20 29 9.83	2.0873	13 37 58.9	7.970	7	22 9 28.28	2.1057	6 1 9.6	10.836
8	20 31 15.06	2.0871	13 29 58.5	8.043	8	22 11 34.66	2.1070	5 50 18.1	10.880
9	20 33 20.28	2.0868	13 21 53.7	8.115	9	22 13 41.12	2.1084	5 39 24.0	10.923
10	20 35 25.47	2.0864	13 13 44.7	8.187	10	22 15 47.67	2.1098	5 28 27.3	10.965
11	20 37 30.65	2.0862	13 5 31.3	8.258	11	22 17 54.30	2.1113	5 17 28.1	11.007
12	20 39 35.81	2.0859	12 57 13.7	8.328	12	22 20 1.02	2.1128	5 6 26.5	11.048
13	20 41 40.96	2.0857	12 48 51.9	8.399	13	22 22 7.84	2.1144	4 55 22.4	11.088
14	20 43 46.09	2.0854	12 40 25.8	8.469	14	22 24 14.75	2.1161	4 44 16.0	11.127
15	20 45 51.21	2.0853	12 31 55.6	8.538	15	22 26 21.77	2.1178	4 33 7.2	11.166
16	20 47 56.33	2.0853	12 23 21.2	8.607	16	22 28 28.89	2.1195	4 21 56.1	11.203
17	20 50 1.44	2.0851	12 14 42.8	8.675	17	22 30 36.11	2.1213	4 10 42.8	11.240
18	20 52 6.54	2.0849	12 6 0.2	8.743	18	22 32 43.45	2.1233	3 59 27.3	11.277
19	20 54 11.63	2.0848	11 57 13.6	8.810	19	22 34 50.90	2.1251	3 48 9.6	11.312
20	20 56 16.72	2.0848	11 48 23.0	8.877	20	22 36 58.46	2.1270	3 36 49.9	11.346
21	20 58 21.80	2.0848	11 39 28.4	8.943	21	22 39 6.14	2.1291	3 25 28.1	11.379
22	21 0 26.89	2.0848	11 30 29.9	9.008	22	22 41 13.95	2.1312	3 14 4.4	11.412
23	21 2 31.98	2.0848	S. 11 21 27.4	+ 9.074	23	22 43 21.88	2.1333	S. 3 2 38.7	+11.444
MONDAY 18.					WEDNESDAY 20.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	21 4 37.07	2.0849	S. 11 12 21.0	+ 9.138	0	22 45 29.94	2.1354	S. 2 51 11.1	+11.475
1	21 6 42.17	2.0850	11 3 10.8	9.202	1	22 47 38.13	2.1377	2 39 41.7	11.505
2	21 8 47.27	2.0851	10 53 56.8	9.265	2	22 49 46.46	2.1399	2 28 10.5	11.534
3	21 10 52.38	2.0853	10 44 39.0	9.328	3	22 51 54.92	2.1423	2 16 37.6	11.563
4	21 12 57.51	2.0856	10 35 17.4	9.391	4	22 54 3.53	2.1447	2 5 3.0	11.590
5	21 15 2.65	2.0858	10 25 52.1	9.452	5	22 56 12.28	2.1470	1 53 26.8	11.616
6	21 17 7.80	2.0860	10 16 23.1	9.513	6	22 58 21.17	2.1495	1 41 49.1	11.642
7	21 19 12.97	2.0863	10 6 50.5	9.573	7	23 0 30.22	2.1521	1 30 9.8	11.667
8	21 21 18.16	2.0867	9 57 14.3	9.633	8	23 2 39.42	2.1547	1 18 29.1	11.689
9	21 23 23.37	2.0871	9 47 34.5	9.693	9	23 4 48.78	2.1573	1 6 47.1	11.712
10	21 25 28.61	2.0875	9 37 51.1	9.752	10	23 6 58.30	2.1600	0 55 3.7	11.734
11	21 27 33.87	2.0879	9 28 4.2	9.810	11	23 9 7.98	2.1628	0 43 19.0	11.754
12	21 29 39.16	2.0884	9 18 13.9	9.868	12	23 11 17.83	2.1656	0 31 33.2	11.773
13	21 31 44.48	2.0889	9 8 20.1	9.924	13	23 13 27.85	2.1684	0 19 46.2	11.792
14	21 33 49.83	2.0895	8 58 23.0	9.980	14	23 15 38.04	2.1713	S. 0 7 58.2	11.809
15	21 35 55.22	2.0902	8 48 22.5	10.036	15	23 17 48.41	2.1743	N. 0 3 50.9	11.826
16	21 38 0.65	2.0908	8 38 18.7	10.091	16	23 19 58.96	2.1773	0 15 40.9	11.841
17	21 40 6.12	2.0915	8 28 11.6	10.146	17	23 22 9.69	2.1804	0 27 31.8	11.855
18	21 42 11.63	2.0922	8 18 1.2	10.200	18	23 24 20.61	2.1836	0 39 23.5	11.868
19	21 44 17.18	2.0929	8 7 47.6	10.253	19	23 26 31.72	2.1868	0 51 16.0	11.881
20	21 46 22.78	2.0938	7 57 30.9	10.305	20	23 28 43.02	2.1900	1 3 9.2	11.893
21	21 48 28.44	2.0947	7 47 11.0	10.357	21	23 30 54.52	2.1933	1 15 3.1	11.903
22	21 50 34.14	2.0955	7 36 48.1	10.408	22	23 33 6.22	2.1967	1 26 57.5	11.911
23	21 52 39.90	2.0965	7 26 22.1	10.458	23	23 35 18.12	2.2000	1 38 52.4	11.918
24	21 54 45.72	2.0975	S. 7 15 53.1	+10.508	24	23 37 30.22	2.2034	N. 1 50 47.7	+11.925

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 21.					SATURDAY 23.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	23 37 30.22	2.2034	N. 1 50 47.7	+11.925	0	1 28 10.14	2.4225	N. 11 6 18.3	+10.673
1	23 39 42.53	2.2070	2 2 43.4	11.931	1	1 30 35.65	2.4278	11 16 56.8	10.610
2	23 41 55.06	2.2107	2 14 39.4	11.935	2	1 33 1.47	2.4331	11 27 31.5	10.546
3	23 44 7.81	2.2143	2 26 35.6	11.938	3	1 35 27.62	2.4384	11 38 2.3	10.479
4	23 46 20.77	2.2178	2 38 31.9	11.939	4	1 37 54.08	2.4437	11 48 29.0	10.411
5	23 48 33.95	2.2216	2 50 28.3	11.941	5	1 40 20.86	2.4490	11 58 51.6	10.342
6	23 50 47.36	2.2254	3 2 24.8	11.941	6	1 42 47.96	2.4543	12 9 10.0	10.271
7	23 53 1.00	2.2293	3 14 21.2	11.938	7	1 45 15.38	2.4596	12 19 24.1	10.198
8	23 55 14.87	2.2331	3 26 17.4	11.935	8	1 47 43.11	2.4648	12 29 33.7	10.123
9	23 57 28.97	2.2370	3 38 13.4	11.931	9	1 50 11.16	2.4702	12 39 38.8	10.047
10	23 59 43.31	2.2410	3 50 9.1	11.926	10	1 52 39.53	2.4755	12 49 39.3	9.969
11	0 1 57.89	2.2450	4 2 4.5	11.919	11	1 55 8.22	2.4808	12 59 35.1	9.890
12	0 4 12.71	2.2491	4 13 59.4	11.911	12	1 57 37.23	2.4861	13 9 26.1	9.809
13	0 6 27.78	2.2533	4 25 53.8	11.902	13	2 0 6.55	2.4913	13 19 12.2	9.726
14	0 8 43.10	2.2574	4 37 47.6	11.892	14	2 2 36.19	2.4966	13 28 53.2	9.642
15	0 10 58.67	2.2616	4 49 40.8	11.880	15	2 5 6.14	2.5018	13 38 29.2	9.556
16	0 13 14.49	2.2659	5 1 33.2	11.866	16	2 7 36.40	2.5069	13 47 59.9	9.468
17	0 15 30.58	2.2703	5 13 24.7	11.851	17	2 10 6.97	2.5121	13 57 25.4	9.379
18	0 17 46.92	2.2746	5 25 15.3	11.835	18	2 12 37.85	2.5173	14 6 45.4	9.288
19	0 20 3.53	2.2790	5 37 4.9	11.818	19	2 15 9.04	2.5224	14 15 59.9	9.196
20	0 22 20.40	2.2835	5 48 53.5	11.800	20	2 17 40.54	2.5275	14 25 8.9	9.102
21	0 24 37.55	2.2880	6 0 40.9	11.779	21	2 20 12.34	2.5325	14 34 12.1	9.006
22	0 26 54.96	2.2925	6 12 27.0	11.758	22	2 22 44.44	2.5375	14 43 9.6	8.909
23	0 29 12.65	2.2971	N. 6 24 11.8	+11.735	23	2 25 16.84	2.5424	N. 14 52 1.2	+ 8.810
FRIDAY 22.					SUNDAY 24.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	0 31 30.61	2.3017	N. 6 35 55.2	+11.711	0	2 27 49.53	2.5473	N. 15 0 46.8	+ 8.710
1	0 33 48.85	2.3063	6 47 37.1	11.684	1	2 30 22.52	2.5523	15 9 26.4	8.608
2	0 36 7.37	2.3111	6 59 17.3	11.657	2	2 32 55.81	2.5573	15 17 59.8	8.504
3	0 38 26.18	2.3158	7 10 55.9	11.628	3	2 35 29.39	2.5620	15 26 26.9	8.399
4	0 40 45.27	2.3206	7 22 32.7	11.598	4	2 38 3.25	2.5667	15 34 47.7	8.293
5	0 43 4.65	2.3254	7 34 7.7	11.567	5	2 40 37.39	2.5714	15 43 2.1	8.185
6	0 45 24.32	2.3303	7 45 40.7	11.533	6	2 43 11.82	2.5761	15 51 9.9	8.075
7	0 47 44.28	2.3352	7 57 11.7	11.499	7	2 45 46.52	2.5807	15 59 11.1	7.964
8	0 50 4.54	2.3402	8 8 40.6	11.463	8	2 48 21.50	2.5853	16 7 5.6	7.852
9	0 52 25.10	2.3451	8 20 7.2	11.425	9	2 50 56.75	2.5897	16 14 53.3	7.738
10	0 54 45.95	2.3500	8 31 31.6	11.386	10	2 53 32.26	2.5940	16 22 34.2	7.623
11	0 57 7.10	2.3551	8 42 53.5	11.345	11	2 56 8.03	2.5983	16 30 8.1	7.506
12	0 59 28.56	2.3602	8 54 13.0	11.303	12	2 58 44.06	2.6027	16 37 34.9	7.388
13	1 1 50.32	2.3653	9 5 29.9	11.259	13	3 1 20.35	2.6068	16 44 54.6	7.268
14	1 4 12.39	2.3703	9 16 44.1	11.213	14	3 3 56.88	2.6109	16 52 7.0	7.147
15	1 6 34.76	2.3754	9 27 55.5	11.167	15	3 6 33.66	2.6149	16 59 12.2	7.025
16	1 8 57.44	2.3806	9 39 4.1	11.118	16	3 9 10.67	2.6188	17 6 10.0	6.902
17	1 11 20.43	2.3858	9 50 9.7	11.068	17	3 11 47.92	2.6228	17 13 0.4	6.777
18	1 13 43.74	2.3910	10 1 12.3	11.017	18	3 14 25.40	2.6266	17 19 43.2	6.650
19	1 16 7.35	2.3962	10 12 11.7	10.963	19	3 17 3.11	2.6303	17 26 18.4	6.523
20	1 18 31.28	2.4014	10 23 7.9	10.909	20	3 19 41.03	2.6338	17 32 45.9	6.394
21	1 20 55.52	2.4067	10 34 0.8	10.853	21	3 22 19.17	2.6374	17 39 5.7	6.264
22	1 23 20.08	2.4119	10 44 50.2	10.794	22	3 24 57.52	2.6408	17 45 17.6	6.133
23	1 25 44.95	2.4172	10 55 36.1	10.734	23	3 27 36.07	2.6441	17 51 21.7	6.002
24	1 28 10.14	2.4225	N. 11 6 18.3	+10.673	24	3 30 14.81	2.6473	N. 17 57 17.8	+ 5.868

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 25.					WEDNESDAY 27.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	3 30 14.81	2.6473	N.17 57 17.8	+5.868	0	5 38 45.52	2.6572	N.19 51 58.1	-1.193
1	3 32 53.74	2.6504	18 3 5.9	5.734	1	5 41 24.86	2.6541	19 50 42.1	1.139
2	3 35 32.86	2.6535	18 8 45.9	5.598	2	5 44 4.01	2.6509	19 49 17.4	1.484
3	3 38 12.16	2.6564	18 14 17.7	5.462	3	5 46 42.97	2.6477	19 47 44.0	1.629
4	3 40 51.63	2.6592	18 19 41.3	5.324	4	5 49 21.74	2.6444	19 46 1.9	1.773
5	3 43 31.26	2.6618	18 24 56.6	5.186	5	5 52 0.30	2.6408	19 44 11.2	1.917
6	3 46 11.05	2.6644	18 30 3.6	5.047	6	5 54 38.64	2.6373	19 42 11.9	2.060
7	3 48 50.99	2.6669	18 35 2.2	4.906	7	5 57 16.77	2.6336	19 40 4.0	2.202
8	3 51 31.08	2.6693	18 39 52.3	4.765	8	5 59 54.67	2.6297	19 37 47.7	2.143
9	3 54 11.31	2.6715	18 44 34.0	4.623	9	6 2 32.33	2.6258	19 35 22.9	2.483
10	3 56 51.66	2.6736	18 49 7.1	4.480	10	6 5 9.76	2.6218	19 32 49.7	2.623
11	3 59 32.14	2.6757	18 53 31.6	4.337	11	6 7 46.95	2.6177	19 30 8.1	2.762
12	4 2 12.74	2.6776	18 57 47.5	4.193	12	6 10 23.88	2.6133	19 27 18.3	2.899
13	4 4 53.45	2.6793	19 1 54.7	4.047	13	6 13 0.55	2.6090	19 24 20.2	3.036
14	4 7 34.26	2.6809	19 5 53.1	3.901	14	6 15 36.96	2.6046	19 21 14.0	3.172
15	4 10 15.16	2.6824	19 9 42.8	3.755	15	6 18 13.10	2.6001	19 17 59.6	3.307
16	4 12 56.15	2.6838	19 13 23.7	3.608	16	6 20 48.97	2.5954	19 14 37.2	3.440
17	4 15 37.22	2.6851	19 16 55.8	3.461	17	6 23 24.55	2.5907	19 11 6.8	3.573
18	4 18 18.36	2.6862	19 20 19.0	3.313	18	6 25 59.85	2.5859	19 7 28.5	3.704
19	4 20 59.56	2.6872	19 23 33.3	3.164	19	6 28 34.86	2.5810	19 3 42.3	3.838
20	4 23 40.82	2.6880	19 26 38.7	3.015	20	6 31 9.57	2.5760	18 59 48.3	3.965
21	4 26 22.12	2.6887	19 29 35.1	2.865	21	6 33 43.98	2.5709	18 55 46.5	4.093
22	4 29 3.46	2.6893	19 32 22.5	2.716	22	6 36 18.08	2.5658	18 51 37.1	4.220
23	4 31 44.84	2.6898	N.19 35 1.0	+2.566	23	6 38 51.87	2.5606	N.18 47 20.1	-4.347
TUESDAY 26.					THURSDAY 28.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	4 34 26.24	2.6901	N.19 37 30.4	+2.415	0	6 41 25.35	2.5553	N.18 42 55.5	-4.472
1	4 37 7.65	2.6903	19 39 50.8	2.264	1	6 43 58.51	2.5499	18 38 23.5	4.595
2	4 39 49.07	2.6903	19 42 2.1	2.113	2	6 46 31.34	2.5444	18 33 44.1	4.718
3	4 42 30.49	2.6903	19 44 4.3	1.962	3	6 49 3.84	2.5389	18 28 57.4	4.838
4	4 45 11.90	2.6900	19 45 57.5	1.811	4	6 51 36.01	2.5334	18 24 3.5	4.958
5	4 47 53.29	2.6897	19 47 41.5	1.659	5	6 54 7.85	2.5278	18 19 2.4	5.078
6	4 50 34.66	2.6892	19 49 16.6	1.508	6	6 56 39.35	2.5222	18 13 54.2	5.195
7	4 53 15.99	2.6885	19 50 42.5	1.356	7	6 59 10.51	2.5164	18 8 39.0	5.312
8	4 55 57.28	2.6877	19 51 59.3	1.204	8	7 1 41.32	2.5106	18 3 16.8	5.428
9	4 58 38.52	2.6868	19 53 7.0	1.053	9	7 4 11.78	2.5048	17 57 47.7	5.541
10	5 1 19.70	2.6858	19 54 5.6	0.901	10	7 6 41.89	2.4988	17 52 11.9	5.653
11	5 4 0.81	2.6846	19 54 55.1	0.750	11	7 9 11.64	2.4929	17 46 29.4	5.764
12	5 6 41.85	2.6833	19 55 35.6	0.599	12	7 11 41.04	2.4870	17 40 40.2	5.874
13	5 9 22.81	2.6818	19 56 7.0	0.448	13	7 14 10.08	2.4809	17 34 44.5	5.983
14	5 12 3.67	2.6802	19 56 29.3	0.296	14	7 16 38.75	2.4748	17 28 42.3	6.090
15	5 14 44.43	2.6784	19 56 42.5	+0.145	15	7 19 7.06	2.4688	17 22 33.7	6.196
16	5 17 25.08	2.6766	19 56 46.7	-0.005	16	7 21 35.00	2.4626	17 16 18.8	6.300
17	5 20 5.62	2.6746	19 56 41.9	0.154	17	7 24 2.57	2.4564	17 9 57.7	6.403
18	5 22 46.04	2.6726	19 56 28.2	0.304	18	7 26 29.77	2.4503	17 3 30.4	6.505
19	5 25 26.33	2.6703	19 56 5.4	0.454	19	7 28 56.60	2.4441	16 56 57.1	6.605
20	5 28 6.47	2.6678	19 55 33.7	0.603	20	7 31 23.06	2.4378	16 50 17.8	6.704
21	5 30 46.47	2.6654	19 54 53.1	0.751	21	7 33 49.14	2.4315	16 43 32.6	6.803
22	5 33 26.32	2.6628	19 54 3.6	0.898	22	7 36 14.84	2.4253	16 36 41.5	6.899
23	5 36 6.00	2.6600	19 53 5.3	1.046	23	7 38 40.17	2.4190	16 29 44.7	6.993
24	5 38 45.52	2.6572	N.19 51 58.1	-1.193	24	7 41 5.12	2.4127	N.16 22 42.3	-7.087

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.					
FRIDAY 29.					SUNDAY, DECEMBER 1.									
	<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>		<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>					
0	7 41 5.12	2.4127	N. 16 22 42.3	- 7.087	0	9 29 47.07	2.1273	N. 9 19 55.7	-10.047					
1	7 43 29.69	2.4063	16 15 34.3	7.179	<div>PHASES OF THE MOON.</div> <div><div>☾ Last Quarter Nov. 2 19 24.4</div><div>● New Moon 10 19 34.2</div><div>☽ First Quarter 18 20 23.4</div><div>○ Full Moon 25 13 17.6</div></div>									
2	7 45 53.88	2.4000	16 8 20.8	7.270										
3	7 48 17.69	2.3936	16 1 1.9	7.359										
4	7 50 41.11	2.3873	15 53 37.7	7.448										
5	7 53 4.16	2.3809	15 46 8.2	7.535										
6	7 55 26.82	2.3745	15 38 33.5	7.621										
7	7 57 49.10	2.3682	15 30 53.7	7.704										
8	8 0 11.00	2.3618	15 23 9.0	7.787										
9	8 2 32.52	2.3554	15 15 19.3	7.868										
10	8 4 53.65	2.3490	15 7 24.8	7.948										
11	8 7 14.40	2.3427	14 59 25.5	8.028										
12	8 9 34.77	2.3363	14 51 21.5	8.104										
13	8 11 54.76	2.3301	14 43 13.0	8.180										
14	8 14 14.38	2.3238	14 34 59.9	8.255										
15	8 16 33.62	2.3175	14 26 42.4	8.328										
16	8 18 52.48	2.3112	14 18 20.6	8.399										
17	8 21 10.96	2.3049	14 9 54.5	8.471										
18	8 23 29.07	2.2988	14 1 24.1	8.540										
19	8 25 46.81	2.2925	13 52 49.7	8.608										
20	8 28 4.17	2.2863	13 44 11.2	8.675										
21	8 30 21.16	2.2801	13 35 28.7	8.740										
22	8 32 37.78	2.2740	13 26 42.4	8.804										
23	8 34 54.04	2.2679	N. 13 17 52.2	- 8.868										
SATURDAY 30.					<div>PHASES OF THE MOON.</div> <div><div>☾ Apogee Nov. 11 0.0</div><div>☾ Perigee 25 4.0</div></div>									
	<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>							<div>h m s</div>	<div>s</div>	<div>° ' "</div>	<div>"</div>
0	8 37 9.93	2.2618	N. 13 8 58.3	- 8.928						0	9 29 47.07	2.1273	N. 9 19 55.7	-10.047
1	8 39 25.45	2.2558	13 0 0.8	8.989						<div>PHASES OF THE MOON.</div> <div><div>☾ Apogee Nov. 11 0.0</div><div>☾ Perigee 25 4.0</div></div>				
2	8 41 40.62	2.2498	12 50 59.6	9.048										
3	8 43 55.42	2.2437	12 41 55.0	9.105										
4	8 46 9.86	2.2378	12 32 47.0	9.162										
5	8 48 23.95	2.2318	12 23 35.6	9.218										
6	8 50 37.68	2.2259	12 14 20.9	9.272										
7	8 52 51.06	2.2201	12 5 3.0	9.325										
8	8 55 4.09	2.2143	11 55 41.9	9.377										
9	8 57 16.77	2.2085	11 46 17.8	9.427										
10	8 59 29.11	2.2028	11 36 50.7	9.476										
11	9 1 41.11	2.1971	11 27 20.7	9.524										
12	9 3 52.76	2.1914	11 17 47.8	9.572										
13	9 6 4.08	2.1858	11 8 12.1	9.617										
14	9 8 15.06	2.1803	10 58 33.8	9.661										
15	9 10 25.71	2.1748	10 48 52.8	9.705										
16	9 12 36.03	2.1693	10 39 9.2	9.748										
17	9 14 46.02	2.1638	10 29 23.1	9.788										
18	9 16 55.69	2.1585	10 19 34.6	9.828										
19	9 19 5.04	2.1532	10 9 43.7	9.868										
20	9 21 14.07	2.1478	9 59 50.4	9.907										
21	9 23 22.78	2.1426	9 49 54.9	9.943										
22	9 25 31.18	2.1375	9 39 57.3	9.978										
23	9 27 39.28	2.1324	9 29 57.5	10.013										
24	9 29 47.07	2.1273	N. 9 19 55.7	-10.047										

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	α Arietis W.	70 32 11	2428	72 15 6	2444	73 57 38	2460	75 39 47	2477
	Aldebaran W.	37 0 29	2383	38 44 28	2399	40 28 4	2415	42 11 18	2431
	Regulus E.	43 9 8	2410	41 25 48	2431	39 42 58	2452	38 0 37	2474
	SUN E.	112 42 59	2687	111 6 2	2706	109 29 30	2725	107 53 23	2744
2	α Arietis W.	84 4 42	2561	85 44 31	2577	87 23 57	2593	89 3 1	2611
	Aldebaran W.	50 41 32	2515	52 22 25	2532	54 2 54	2548	55 43 2	2564
	SUN E.	99 59 0	2837	98 25 21	2855	96 52 5	2873	95 19 12	2892
3	α Arietis W.	97 12 39	2692	98 49 29	2708	100 25 57	2724	102 2 5	2740
	Aldebaran W.	63 58 6	2643	65 36 2	2658	67 13 38	2673	68 50 54	2688
	SUN E.	87 40 31	2979	86 9 52	2996	84 39 34	3012	83 9 36	3028
4	Aldebaran W.	76 52 25	2758	78 27 48	2771	80 2 54	2784	81 37 43	2796
	Pollux W.	35 47 14	3014	37 17 10	3009	38 47 13	3006	40 17 20	3004
	SUN E.	75 44 41	3105	74 16 37	3120	72 48 52	3133	71 21 23	3147
5	Aldebaran W.	89 27 52	2855	91 1 9	2866	92 34 12	2876	94 7 2	2886
	Pollux W.	47 47 57	3010	49 17 57	3014	50 47 53	3017	52 17 45	3021
	SUN E.	64 7 56	3210	62 42 0	3222	61 16 17	3233	59 50 48	3244
6	Aldebaran W.	101 48 6	2932	103 19 45	2940	104 51 12	2948	106 22 30	2956
	Pollux W.	59 45 46	3043	61 15 5	3048	62 44 17	3053	64 13 24	3058
	Regulus W.	22 44 7	3057	24 13 9	3052	25 42 18	3048	27 11 32	3045
	SUN E.	52 46 28	3295	51 22 10	3304	49 58 3	3312	48 34 5	3320
7	Pollux W.	71 37 30	3082	73 6 2	3086	74 34 28	3090	76 2 50	3095
	Regulus W.	34 38 7	3045	36 7 24	3047	37 36 38	3048	39 5 51	3050
	SUN E.	41 36 37	3358	40 13 32	3365	38 50 36	3371	37 27 47	3377
8	Pollux W.	83 23 22	3114	84 51 14	3118	86 19 1	3122	87 46 44	3125
	Regulus W.	46 31 13	3063	48 0 8	3065	49 29 1	3067	50 57 51	3069
	SUN E.	30 35 16	3404	29 13 4	3408	27 50 57	3413	26 28 55	3417
9	Regulus W.	58 21 21	3079	59 49 56	3081	61 18 29	3082	62 47 0	3084
	SUN E.	19 39 49	3434	18 18 11	3437	16 56 36	3440	15 35 4	3443
12	SUN W.	12 53 0	3453	14 14 17	3451	15 35 36	3449	16 56 57	3447
	Fomalhaut E.	90 52 51	3535	89 33 6	3534	88 13 19	3533	86 53 30	3532
	α Pegasi E.	108 9 16	3237	106 43 51	3234	105 18 22	3230	103 52 48	3226
13	SUN W.	23 44 22	3434	25 6 0	3431	26 27 42	3427	27 49 28	3423
	Fomalhaut E.	80 14 30	3536	78 54 46	3538	77 35 4	3540	76 15 24	3543
	α Pegasi E.	96 43 52	3248	95 17 52	3201	93 51 47	3200	92 25 38	3196
14	SUN W.	34 39 26	3401	36 1 41	3396	37 24 1	3391	38 46 28	3385
	Fomalhaut E.	69 38 8	3567	68 18 58	3574	66 59 55	3581	65 41 0	3590
	α Pegasi E.	85 13 46	3178	83 47 10	3174	82 20 30	3170	80 53 45	3166
15	SUN W.	45 40 29	3352	47 3 40	3345	48 27 0	3337	49 50 29	3329
	MARS W.	15 26 56	3415	16 48 55	3388	18 11 25	3362	19 34 26	3337
	Fomalhaut E.	59 9 8	3619	57 51 26	3665	56 34 1	3682	55 16 55	3701

GREENWICH MEAN TIME.										
LUNAR DISTANCES.										
Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	α Arietis	W.	77 21 33	2494	79 2 55	2510	80 43 54	2527	82 24 30	2544
	Aldebaran	W.	43 54 8	2448	45 36 34	2465	47 18 36	2481	49 0 16	2498
	Regulus	E.	36 18 47	2497	34 37 29	2520	32 56 43	2543	31 16 30	2567
	SUN	E.	106 17 41	2763	104 42 24	2782	103 7 32	2800	101 33 4	2819
2	α Arietis	W.	90 41 41	2627	92 19 59	2644	93 57 54	2660	95 35 27	2676
	Aldebaran	W.	57 22 47	2580	59 2 9	2596	60 41 9	2612	62 19 48	2627
	SUN	E.	93 46 43	2910	92 14 37	2927	90 42 53	2945	89 11 31	2962
3	α Arietis	W.	103 37 52	2755	105 13 19	2770	106 48 26	2785	108 23 13	2800
	Aldebaran	W.	70 27 50	2702	72 4 26	2716	73 40 44	2730	75 16 44	2744
	SUN	E.	81 39 59	3044	80 10 41	3060	78 41 43	3075	77 13 3	3090
4	Aldebaran	W.	83 12 16	2808	84 46 33	2820	86 20 34	2832	87 54 20	2843
	Pollux	W.	41 47 28	3003	43 17 37	3004	44 47 46	3005	46 17 53	3007
	SUN	E.	69 54 10	3161	68 27 14	3173	67 0 33	3186	65 34 7	3198
5	Aldebaran	W.	95 39 39	2895	97 12 4	2905	98 44 16	2914	100 16 17	2923
	Pollux	W.	53 47 33	3025	55 17 15	3030	56 46 50	3034	58 16 20	3038
	SUN	E.	58 25 31	3255	57 0 27	3266	55 35 36	3276	54 10 56	3285
6	Aldebaran	W.	107 53 38	2964	109 24 36	2971	110 55 25	2978	112 26 5	2984
	Pollux	W.	65 42 25	3063	67 11 20	3068	68 40 9	3073	70 8 52	3077
	Regulus	W.	28 40 49	3044	30 10 8	3043	31 39 28	3043	33 8 48	3044
	SUN	E.	47 10 17	3329	45 46 39	3337	44 23 10	3344	42 59 49	3351
7	Pollux	W.	77 31 6	3099	78 59 17	3103	80 27 23	3106	81 55 25	3110
	Regulus	W.	40 35 2	3053	42 4 9	3056	43 33 13	3058	45 2 14	3060
	SUN	E.	36 5 4	3383	34 42 28	3388	33 19 58	3393	31 57 34	3399
8	Pollux	W.	89 14 23	3129	90 41 57	3132	92 9 28	3135	93 36 55	3138
	Regulus	W.	52 26 38	3071	53 55 22	3073	55 24 4	3075	56 52 44	3077
	SUN	E.	25 6 58	3421	23 45 5	3424	22 23 16	3428	21 1 31	3431
9	Regulus	W.	64 15 29	3086	65 43 56	3087	67 12 22	3088	68 40 46	3088
	SUN	E.	14 13 36	3445	12 52 10	3448	11 30 47	3451	10 9 28	3454
12	SUN	W.	18 18 21	3445	19 39 47	3442	21 1 15	3439	22 22 47	3437
	Fomalhaut	E.	85 33 41	3532	84 13 52	3533	82 54 4	3534	81 34 16	3535
	α Pegasi	E.	102 27 10	3222	101 1 27	3218	99 35 40	3214	98 9 48	3211
13	SUN	W.	29 11 19	3419	30 33 13	3415	31 55 12	3411	33 17 16	3406
	Fomalhaut	E.	74 55 48	3547	73 36 16	3551	72 16 48	3556	70 57 25	3561
	α Pegasi	E.	90 59 24	3193	89 33 6	3189	88 6 44	3185	86 40 17	3182
14	SUN	W.	40 9 2	3379	41 31 42	3372	42 54 30	3365	44 17 26	3359
	Fomalhaut	E.	64 22 15	3600	63 3 40	3610	61 45 16	3622	60 27 5	3635
	α Pegasi	E.	79 26 55	3162	78 0 1	3158	76 33 2	3154	75 5 58	3150
15	SUN	W.	51 14 7	3320	52 37 55	3311	54 1 53	3302	55 26 2	3292
	MARS	W.	20 57 55	3315	22 21 50	3295	23 46 7	3278	25 10 44	3262
	Fomalhaut	E.	54 0 9	3723	52 43 46	3748	51 27 50	3775	50 12 22	3805

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.			P. L. of Diff.	IIIh.			P. L. of Diff.	VIh.			P. L. of Diff.	IXh.			P. L. of Diff.
			°	'	"		°	'	"		°	'	"		°	'	"	
15	<i>α</i> Pegasi	E.	73	38	49	3146	72	11	35	3142	70	44	17	3138	69	16	53	3134
	<i>α</i> Arietis	E.	116	57	9	3046	115	27	53	3038	113	58	27	3029	112	28	50	3020
16	SUN	W.	56	50	23	3282	58	14	55	3272	59	39	38	3262	61	4	34	3251
	MARS	W.	26	35	40	3246	28	0	55	3231	29	26	29	3216	30	52	20	3202
	Fomalhaut	E.	48	57	24	3838	47	43	1	3875	46	29	16	3916	45	16	13	3963
	<i>α</i> Pegasi	E.	61	58	48	3116	60	30	58	3113	59	3	4	3110	57	35	7	3108
	<i>α</i> Arietis	E.	104	57	54	2972	103	27	6	2962	101	56	6	2951	100	24	52	2941
17	SUN	W.	68	12	37	3191	69	38	57	3178	71	5	32	3164	72	32	24	3151
	MARS	W.	38	5	53	3129	39	33	28	3114	41	1	21	3099	42	29	32	3084
	JUPITER	W.	21	28	50	2998	22	59	5	2973	24	29	51	2951	26	1	5	2930
	SATURN	W.	20	14	35	2955	21	45	44	2932	23	17	22	2910	24	49	28	2889
	<i>α</i> Pegasi	E.	50	14	48	3104	48	46	43	3106	47	18	39	3109	45	50	39	3113
	<i>α</i> Arietis	E.	92	45	14	2884	91	12	35	2872	89	39	41	2859	88	6	30	2847
	Aldebaran	E.	126	6	16	2838	124	32	37	2825	122	58	41	2812	121	24	29	2799
18	SUN	W.	79	51	0	3077	81	19	38	3061	82	48	35	3045	84	17	52	3028
	MARS	W.	49	55	5	3006	51	25	10	2990	52	55	35	2973	54	26	21	2957
	JUPITER	W.	33	43	41	2834	35	17	25	2816	36	51	32	2798	38	26	3	2780
	SATURN	W.	32	36	27	2795	34	11	2	2777	35	46	2	2759	37	21	24	2741
	<i>α</i> Arietis	E.	80	16	25	2780	78	41	32	2766	77	6	20	2752	75	30	50	2738
	Aldebaran	E.	113	29	5	2730	111	53	5	2715	110	16	45	2700	108	40	5	2684
19	SUN	W.	91	49	30	2943	93	20	55	2925	94	52	42	2906	96	24	53	2888
	MARS	W.	62	5	30	2869	63	38	28	2852	65	11	48	2834	66	45	32	2815
	JUPITER	W.	46	24	33	2689	48	1	27	2671	49	38	45	2653	51	16	28	2635
	SATURN	W.	45	24	11	2652	47	1	55	2634	48	40	4	2616	50	18	38	2598
	<i>α</i> Aquilæ	W.	35	47	58	4000	36	59	38	3978	38	13	20	3767	39	28	57	3667
	<i>α</i> Arietis	E.	67	28	31	2665	65	51	4	2650	64	13	17	2635	62	35	10	2621
	Aldebaran	E.	100	31	29	2604	98	52	40	2588	97	13	28	2571	95	33	53	2553
20	SUN	W.	104	11	44	2794	105	46	20	2775	107	21	21	2756	108	56	47	2737
	MARS	W.	74	40	13	2722	76	16	23	2703	77	52	59	2684	79	30	0	2666
	JUPITER	W.	59	31	18	2542	61	11	33	2524	62	52	12	2505	64	33	18	2487
	SATURN	W.	58	37	39	2507	60	18	43	2488	62	0	14	2470	63	42	10	2451
	<i>α</i> Aquilæ	W.	46	11	9	3278	47	35	46	3217	49	1	35	3159	50	28	33	3106
	<i>α</i> Arietis	E.	54	19	35	2548	52	39	29	2535	50	59	4	2522	49	18	20	2509
	Aldebaran	E.	87	9	59	2466	85	27	58	2449	83	45	33	2431	82	2	42	2413
21	SUN	W.	117	0	18	2641	118	38	17	2622	120	16	42	2603	121	55	33	2585
	MARS	W.	87	41	25	2572	89	20	59	2553	91	0	58	2535	92	41	23	2517
	JUPITER	W.	73	5	18	2395	74	49	0	2377	76	33	8	2359	78	17	42	2341
	SATURN	W.	72	18	21	2360	74	2	54	2342	75	47	52	2324	77	33	16	2307
	<i>α</i> Aquilæ	W.	57	58	30	2882	59	31	12	2844	61	4	42	2808	62	38	59	2774
	Aldebaran	E.	73	22	7	2324	71	36	43	2307	69	50	54	2290	68	4	40	2273
	Pollux	E.	115	31	55	2425	113	48	56	2405	112	5	29	2385	110	21	33	2365
22	MARS	W.	101	9	39	2430	102	52	31	2414	104	35	45	2398	106	19	22	2383
	JUPITER	W.	87	6	51	2257	88	53	54	2241	90	41	21	2225	92	29	11	2210
	SATURN	W.	86	26	35	2223	88	14	29	2207	90	2	46	2192	91	51	26	2177
	<i>α</i> Aquilæ	W.	70	40	52	2629	72	19	8	2605	73	57	56	2581	75	37	17	2559

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
15	<i>a</i> Pegasi E.	67 49 25	3130	66 21 52	3127	64 54 15	3123	63 26 34	3119
	<i>a</i> Arietis E.	110 59 2	3011	109 29 3	3001	107 58 52	2992	106 28 29	2982
16	SUN W.	62 29 43	3240	63 55 5	3228	65 20 41	3216	66 46 32	3204
	MARS W.	32 18 27	3187	33 44 52	3172	35 11 35	3158	36 38 35	3143
	Fomalhaut E.	44 3 57	4016	42 52 33	4075	41 42 7	4141	40 32 45	4214
	<i>a</i> Pegasi E.	56 7 7	3106	54 39 4	3105	53 10 59	3104	51 42 54	3103
	<i>a</i> Arietis E.	98 53 25	2930	97 21 44	2919	95 49 49	2907	94 17 39	2895
17	SUN W.	73 59 32	3137	75 26 57	3122	76 54 40	3107	78 22 41	3092
	MARS W.	43 58 1	3069	45 26 48	3054	46 55 54	3038	48 25 20	3022
	JUPITER W.	27 32 45	2909	29 4 52	2890	30 37 25	2871	32 10 21	2852
	SATURN W.	26 22 2	2868	27 55 2	2849	29 28 28	2831	31 2 17	2814
	<i>a</i> Pegasi E.	44 22 44	3118	42 54 56	3125	41 27 17	3135	39 59 50	3147
	<i>a</i> Arietis E.	86 33 3	2834	84 59 19	2821	83 25 19	2808	81 51 1	2794
	Aldebaran E.	119 50 0	2785	118 15 13	2772	116 40 9	2758	115 4 46	2744
18	SUN W.	85 47 30	3012	87 17 28	2995	88 47 47	2978	90 18 28	2961
	MARS W.	55 57 28	2940	57 28 56	2923	59 0 45	2906	60 32 56	2888
	JUPITER W.	40 0 58	2762	41 36 16	2744	43 11 57	2725	44 48 3	2707
	SATURN W.	38 57 10	2722	40 33 20	2705	42 9 53	2687	43 46 50	2669
	<i>a</i> Arietis E.	73 55 1	2724	72 18 53	2709	70 42 25	2695	69 5 38	2680
	Aldebaran E.	107 3 4	2669	105 25 42	2654	103 48 0	2638	102 9 56	2621
19	SUN W.	97 57 27	2869	99 30 25	2851	101 3 47	2832	102 37 33	2813
	MARS W.	68 19 41	2797	69 54 13	2779	71 29 8	2760	73 4 28	2741
	JUPITER W.	52 54 36	2617	54 33 9	2599	56 12 6	2580	57 51 29	2561
	SATURN W.	51 57 36	2580	53 36 59	2561	55 16 47	2543	56 57 0	2525
	<i>a</i> Aquilæ W.	40 46 19	3576	42 5 19	3494	43 25 50	3416	44 47 48	3344
	<i>a</i> Arietis E.	60 56 43	2606	59 17 56	2591	57 38 49	2577	55 59 22	2562
	Aldebaran E.	93 53 54	2537	92 13 32	2519	90 32 45	2502	88 51 34	2484
20	SUN W.	110 32 38	2717	112 8 55	2698	113 45 37	2679	115 22 45	2660
	MARS W.	81 7 26	2647	82 45 17	2628	84 23 34	2609	86 2 17	2591
	JUPITER W.	66 14 50	2468	67 56 48	2450	69 39 12	2431	71 22 2	2413
	SATURN W.	65 24 32	2433	67 7 20	2415	68 50 34	2396	70 34 14	2378
	<i>a</i> Aquilæ W.	51 56 35	3056	53 25 39	3009	54 55 41	2964	56 26 39	2922
	<i>a</i> Arietis E.	47 37 19	2497	45 56 1	2486	44 14 28	2475	42 32 40	2465
	Aldebaran E.	80 19 26	2396	78 35 45	2378	76 51 38	2359	75 7 5	2342
21	SUN W.	123 34 48	2567	125 14 28	2549	126 54 33	2531	128 35 3	2513
	MARS W.	94 22 13	2499	96 3 28	2482	97 45 7	2464	99 27 11	2447
	JUPITER W.	80 2 42	2324	81 48 7	2307	83 33 57	2290	85 20 12	2273
	SATURN W.	79 19 6	2289	81 5 21	2272	82 52 1	2256	84 39 6	2239
	<i>a</i> Aquilæ W.	64 14 1	2743	65 49 44	2712	67 26 8	2683	69 3 11	2655
	Aldebaran E.	66 18 0	2256	64 30 55	2239	62 43 26	2223	60 55 32	2207
	Pollux E.	108 37 9	2346	106 52 17	2328	105 6 58	2309	103 21 12	2291
22	MARS W.	108 3 22	2368	109 47 42	2354	111 32 23	2340	113 17 24	2326
	JUPITER W.	94 17 23	2196	96 5 57	2182	97 54 53	2168	99 44 9	2155
	SATURN W.	93 40 29	2162	95 29 54	2148	97 19 40	2134	99 9 47	2122
	<i>a</i> Aquilæ W.	77 17 9	2539	78 57 29	2520	80 38 15	2502	82 19 27	2485

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
22	Fomalhaut	W.	43 46 44	3271	45 11 29	3188	46 37 52	3113	48 5 46	3044
	Aldebaran	E.	59 7 15	2191	57 18 34	2176	55 29 30	2161	53 40 3	2147
	Pollux	E.	101 35 0	2274	99 48 22	2258	98 1 20	2242	96 13 54	2226
23	JUPITER	W.	101 33 44	2143	103 23 39	2131	105 13 51	2120	107 4 21	2109
	SATURN	W.	101 0 13	2110	102 50 59	2098	104 42 2	2086	106 33 23	2075
	α Aquilæ	W.	84 1 2	2469	85 42 59	2455	87 25 15	2443	89 7 49	2432
	Fomalhaut	W.	55 44 29	2776	57 19 28	2735	58 55 22	2697	60 32 6	2662
	α Pegasi	W.	36 16 20	2525	37 56 59	2477	39 38 44	2434	41 21 30	2394
	Aldebaran	E.	44 27 37	2083	42 36 11	2072	40 44 27	2061	38 52 28	2052
	Pollux	E.	87 11 13	2157	85 21 41	2146	83 31 51	2135	81 41 45	2125
	Regulus	E.	123 56 2	2097	122 4 58	2084	120 13 34	2071	118 21 50	2059
24	α Aquilæ	W.	97 43 57	2398	99 27 36	2396	101 11 17	2395	102 54 59	2396
	Fomalhaut	W.	68 46 14	2530	70 26 46	2511	72 7 44	2494	73 49 6	2478
	α Pegasi	W.	50 7 36	2253	51 54 44	2233	53 42 23	2216	55 30 28	2200
	Pollux	E.	72 27 55	2088	70 36 38	2084	68 45 14	2081	66 53 46	2079
	Regulus	E.	108 59 1	2012	107 5 45	2005	105 12 18	1999	103 18 41	1993
25	Fomalhaut	W.	82 20 26	2432	84 3 15	2428	85 46 10	2426	87 29 7	2426
	α Pegasi	W.	64 35 53	2147	66 25 41	2141	68 15 37	2137	70 5 41	2134
	Pollux	E.	57 36 9	2086	55 44 48	2092	53 53 36	2099	52 2 35	2107
	Regulus	E.	93 48 50	1978	91 54 41	1977	90 0 31	1978	88 6 22	1979
26	Fomalhaut	W.	96 3 9	2452	97 45 31	2462	99 27 38	2474	101 9 28	2488
	α Pegasi	W.	79 16 28	2138	81 6 30	2143	82 56 24	2148	84 46 10	2154
	α Arietis	W.	35 38 26	2141	37 28 23	2135	39 18 30	2130	41 8 44	2127
	Pollux	E.	42 51 48	2184	41 2 53	2204	39 14 32	2229	37 26 48	2258
	Regulus	E.	78 36 31	1999	76 42 54	2005	74 49 27	2012	72 56 12	2020
27	Fomalhaut	W.	109 32 52	2586	111 12 6	2612	112 50 45	2640	114 28 46	2670
	α Pegasi	W.	93 52 0	2204	95 40 22	2217	97 28 24	2231	99 16 6	2245
	α Arietis	W.	50 20 2	2141	52 9 58	2149	53 59 42	2157	55 49 14	2166
	Regulus	E.	63 33 27	2072	61 41 45	2085	59 50 23	2099	57 59 22	2113
	Spica	E.	117 15 35	2047	115 23 14	2058	113 31 10	2070	111 39 25	2084
28	α Pegasi	W.	108 8 43	2333	109 53 54	2353	111 38 36	2374	113 22 48	2396
	α Arietis	W.	64 52 59	2227	66 40 47	2241	68 28 14	2255	70 15 20	2270
	Aldebaran	W.	31 18 15	2182	33 7 10	2196	34 55 44	2210	36 43 56	2226
	Regulus	E.	48 50 2	2194	47 1 26	2212	45 13 17	2231	43 25 37	2251
	Spica	E.	102 26 3	2157	100 36 31	2174	98 47 24	2190	96 58 41	2207
29	α Arietis	W.	79 4 52	2355	80 49 31	2373	82 33 44	2391	84 17 31	2410
	Aldebaran	W.	45 39 1	2310	47 24 46	2327	49 10 6	2345	50 55 0	2364
	Spica	E.	88 1 36	2296	86 15 31	2315	84 29 54	2334	82 44 43	2353
	SUN	E.	132 7 11	2623	130 28 47	2642	128 50 49	2662	127 13 18	2682
30	α Arietis	W.	92 49 45	2505	94 30 51	2525	96 11 29	2545	97 51 40	2564
	Aldebaran	W.	59 32 47	2457	61 15 1	2476	62 56 48	2494	64 38 9	2513
	Spica	E.	74 5 42	2448	72 23 15	2467	70 41 16	2486	68 59 43	2505
	SUN	E.	119 12 34	2785	117 37 47	2806	116 3 27	2827	114 29 34	2847

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
22	Fomalhaut	W.	49 35 4	2981	51 5 40	2923	52 37 30	2869	54 10 28	2821
	Aldebaran	E.	51 50 15	2133	50 0 5	2119	48 9 35	2106	46 18 45	2094
	Pollux	E.	94 26 5	2210	92 37 53	2196	90 49 20	2183	89 0 26	2170
23	JUPITER	W.	108 55 6	2099	110 46 7	2090	112 37 22	2081	114 28 50	2073
	SATURN	W.	108 25 0	2065	110 16 53	2056	112 9 1	2048	114 1 21	2041
	α Aquilæ	W.	90 50 39	2422	92 33 43	2414	94 16 59	2407	96 0 24	2401
	Fomalhaut	W.	62 9 37	2631	63 47 50	2602	65 26 42	2575	67 6 11	2551
	α Pegasi	W.	43 5 13	2359	44 49 46	2328	46 35 3	2301	48 21 1	2276
	Aldebaran	E.	37 0 15	2043	35 7 48	2035	33 15 8	2029	31 22 19	2025
	Pollux	E.	79 51 24	2116	78 0 49	2108	76 10 2	2101	74 19 4	2094
	Regulus	E.	116 29 48	2048	114 37 29	2038	112 44 54	2029	110 52 4	2020
24	α Aquilæ	W.	104 38 40	2399	106 22 16	2404	108 5 44	2411	109 49 3	2419
	Fomalhaut	W.	75 30 51	2464	77 12 55	2453	78 55 14	2445	80 37 45	2438
	α Pegasi	W.	57 18 56	2186	59 7 45	2174	60 56 52	2163	62 46 16	2154
	Pollux	E.	65 2 14	2077	63 10 40	2078	61 19 7	2079	59 27 36	2082
	Regulus	E.	101 24 55	1988	99 31 1	1984	97 37 2	1981	95 42 58	1979
25	Fomalhaut	W.	89 12 5	2427	90 55 1	2431	92 37 51	2436	94 20 35	2443
	α Pegasi	W.	71 55 49	2132	73 45 59	2131	75 36 11	2132	77 26 21	2134
	Pollux	E.	50 11 47	2118	48 21 15	2131	46 31 3	2145	44 41 13	2162
	Regulus	E.	86 12 14	1981	84 18 10	1984	82 24 11	1988	80 30 17	1993
26	Fomalhaut	W.	102 50 58	2504	104 32 6	2522	106 12 49	2541	107 53 5	2562
	α Pegasi	W.	86 35 47	2162	88 25 12	2171	90 14 23	2181	92 3 19	2192
	α Arietis	W.	42 59 3	2126	44 49 23	2127	46 39 42	2130	48 29 56	2135
	Pollux	E.	35 39 47	2293	33 53 37	2332	32 8 24	2376	30 24 15	2426
	Regulus	E.	71 3 9	2029	69 10 20	2039	67 17 46	2049	65 25 28	2060
27	Fomalhaut	W.	116 6 6	2703	117 42 41	2738	119 18 31	2775	120 53 32	2815
	α Pegasi	W.	101 3 27	2261	102 50 24	2278	104 36 56	2295	106 23 3	2313
	α Arietis	W.	57 38 34	2176	59 27 36	2188	61 16 22	2200	63 4 50	2213
	Regulus	E.	56 8 42	2128	54 18 25	2144	52 28 33	2160	50 39 5	2177
	Spica	E.	109 48 1	2093	107 56 58	2112	106 6 18	2126	104 15 59	2141
28	α Pegasi	W.	115 6 28	2419	116 49 35	2443	118 32 8	2468	120 14 6	2493
	α Arietis	W.	72 2 3	2287	73 48 22	2304	75 34 16	2320	77 19 46	2337
	Aldebaran	W.	38 31 46	2242	40 19 11	2258	42 6 12	2274	43 52 49	2291
	Regulus	E.	41 38 26	2272	39 51 46	2294	38 5 38	2316	36 20 2	2338
	Spica	E.	95 10 23	2224	93 22 31	2242	91 35 7	2260	89 48 8	2278
29	α Arietis	W.	86 0 52	2429	87 43 46	2448	89 26 12	2467	91 8 12	2486
	Aldebaran	W.	52 39 27	2382	54 23 27	2401	56 7 0	2419	57 50 7	2438
	Spica	E.	81 0 0	2372	79 15 45	2391	77 31 57	2410	75 48 36	2429
	SUN	E.	125 36 14	2703	123 59 38	2724	122 23 30	2744	120 47 49	2764
30	α Arietis	W.	99 31 25	2584	101 10 43	2604	102 49 33	2623	104 27 57	2642
	Aldebaran	W.	66 19 4	2532	67 59 32	2551	69 39 34	2570	71 19 10	2588
	Spica	E.	67 18 37	2525	65 37 58	2543	63 57 45	2562	62 17 58	2580
	SUN	E.	112 56 7	2868	111 23 7	2888	109 50 33	2908	108 18 25	2928

AT GREENWICH APPARENT NOON.

		THE SUN'S										Equation of Time, to be Subtracted from			
Day of the Week.	Day of the Month.	Apparent Right Ascension.			Diff. for 1 Hour.	Apparent Declination.			Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Added to Apparent Time.		Diff. for 1 Hour.	
		h	m	s		s	°	'				"	m		s
SUN.	1	16	27	31.16	10.785	S. 21	44	56.9	-23.77	16	14.59	70.17	11	2.28	0.926
Mon.	2	16	31	50.35	10.813	21	54	15.0	22.73	16	14.74	70.25	10	39.71	0.954
Tues.	3	16	36	10.19	10.839	22	3	7.8	21.66	16	14.89	70.33	10	16.49	0.981
Wed.	4	16	40	30.67	10.865	22	11	35.0	-20.58	16	15.03	70.41	9	52.63	1.006
Thur.	5	16	44	51.76	10.890	22	19	36.4	19.50	16	15.17	70.49	9	28.16	1.031
Frid.	6	16	49	13.42	10.914	22	27	11.8	18.42	16	15.31	70.56	9	3.13	1.054
Sat.	7	16	53	35.63	10.936	22	34	21.0	-17.33	16	15.44	70.63	8	37.54	1.077
SUN.	8	16	57	58.37	10.957	22	41	3.6	16.22	16	15.56	70.70	8	11.43	1.097
Mon.	9	17	2	21.60	10.977	22	47	19.5	15.10	16	15.68	70.77	7	44.83	1.116
Tues.	10	17	6	45.29	10.995	22	53	8.5	-13.97	16	15.79	70.83	7	17.77	1.133
Wed.	11	17	11	9.40	11.013	22	58	30.3	12.84	16	15.90	70.88	6	50.29	1.150
Thur.	12	17	15	33.91	11.029	23	3	25.0	11.70	16	16.01	70.93	6	22.43	1.167
Frid.	13	17	19	58.78	11.043	23	7	52.0	-10.55	16	16.11	70.98	5	54.19	1.183
Sat.	14	17	24	23.97	11.056	23	11	51.5	9.40	16	16.21	71.02	5	25.62	1.196
SUN.	15	17	28	49.46	11.067	23	15	23.2	8.24	16	16.30	71.06	4	56.77	1.207
Mon.	16	17	33	15.19	11.077	23	18	27.1	-7.07	16	16.39	71.09	4	27.67	1.217
Tues.	17	17	37	41.15	11.085	23	21	3.0	5.91	16	16.47	71.12	3	58.36	1.226
Wed.	18	17	42	7.29	11.092	23	23	10.8	4.74	16	16.55	71.15	3	28.84	1.232
Thur.	19	17	46	33.57	11.097	23	24	50.6	-3.57	16	16.63	71.17	2	59.21	1.237
Frid.	20	17	50	59.97	11.101	23	26	2.1	2.39	16	16.70	71.18	2	29.46	1.241
Sat.	21	17	55	26.44	11.104	23	26	45.4	1.22	16	16.76	71.19	1	59.62	1.244
SUN.	22	17	59	52.96	11.106	23	27	0.4	-0.04	16	16.82	71.20	1	29.74	1.245
Mon.	23	18	4	19.50	11.106	23	26	47.1	+1.14	16	16.87	71.20	0	59.85	1.245
Tues.	24	18	8	46.03	11.104	23	26	5.6	2.32	16	16.91	71.20	0	29.96	1.243
Wed.	25	18	13	12.50	11.101	23	24	55.7	+3.50	16	16.95	71.19	0	0.13	1.241
Thur.	26	18	17	38.91	11.098	23	23	17.6	4.68	16	16.99	71.18	0	29.65	1.237
Frid.	27	18	22	5.21	11.093	23	21	11.2	5.85	16	17.03	71.16	0	59.31	1.233
Sat.	28	18	26	31.38	11.088	23	18	36.6	+7.02	16	17.06	71.14	1	28.84	1.227
SUN.	29	18	30	57.40	11.081	23	15	33.9	8.19	16	17.09	71.12	1	58.22	1.220
Mon.	30	18	35	23.23	11.072	23	12	3.2	9.36	16	17.11	71.09	2	27.41	1.211
Tues.	31	18	39	48.83	11.062	23	8	4.6	10.52	16	17.12	71.06	2	56.38	1.202
Wed.	32	18	44	14.21	11.053	S. 23	3	38.1	+11.68	16	17.13	71.02	3	25.12	1.192

NOTE.—The mean time of semidiameter passing may be found by subtracting 0.19 from the sidereal time.

The sign — prefixed to the hourly change of declination indicates that south declinations are increasing; the sign + indicates that south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Added to		Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Subtracted from			
						Mean Time.			
		^h ^m ^s	^s	[°] ' "	"	^m ^s	^s	^h ^m ^s	
SUN.	1	16 27 33.14	+ 10.783	S. 21 45 1.4	- 23.76	11 2.11	- 0.926	16 38 35.25	
Mon.	2	16 31 52.27	10.811	21 54 19.0	22.71	10 39.54	0.954	16 42 31.81	
Tues.	3	16 36 12.05	10.837	22 3 11.5	21.64	10 16.32	0.981	16 46 28.36	
Wed.	4	16 40 32.46	+ 10.863	22 11 38.4	- 20.56	9 52.46	- 1.006	16 50 24.92	
Thur.	5	16 44 53.48	10.887	22 19 39.5	19.48	9 28.00	1.031	16 54 21.48	
Frid.	6	16 49 15.07	10.911	22 27 14.6	18.40	9 2.97	1.054	16 58 18.04	
Sat.	7	16 53 37.21	+ 10.933	22 34 23.5	- 17.31	8 37.39	- 1.077	17 2 14.59	
SUN.	8	16 57 59.87	10.954	22 41 5.8	16.21	8 11.28	1.097	17 6 11.15	
Mon.	9	17 2 23.02	10.974	22 47 21.5	15.09	7 44.69	1.116	17 10 7.71	
Tues.	10	17 6 46.63	+ 10.992	22 53 10.2	- 13.96	7 17.63	- 1.133	17 14 4.26	
Wed.	11	17 11 10.66	11.009	22 58 31.8	12.83	6 50.16	1.150	17 18 0.82	
Thur.	12	17 15 35.08	11.025	23 3 26.2	11.69	6 22.30	1.167	17 21 57.38	
Frid.	13	17 19 59.87	+ 11.039	23 7 53.0	- 10.54	5 54.07	- 1.183	17 25 53.94	
Sat.	14	17 24 24.98	11.052	23 11 52.3	9.39	5 25.51	1.196	17 29 50.49	
SUN.	15	17 28 50.38	11.063	23 15 23.9	8.23	4 56.67	1.207	17 33 47.05	
Mon.	16	17 33 16.02	+ 11.073	23 18 27.6	- 7.07	4 27.58	- 1.217	17 37 43.61	
Tues.	17	17 37 41.89	11.081	23 21 3.4	5.91	3 58.28	1.226	17 41 40.17	
Wed.	18	17 42 7.94	11.088	23 23 11.1	4.74	3 28.77	1.232	17 45 36.72	
Thur.	19	17 46 34.13	+ 11.093	23 24 50.8	- 3.57	2 59.15	- 1.237	17 49 33.28	
Frid.	20	17 51 0.43	11.098	23 26 2.2	2.39	2 29.41	1.241	17 53 29.84	
Sat.	21	17 55 26.81	11.101	23 26 45.4	1.22	1 59.58	1.244	17 57 26.40	
SUN.	22	17 59 53.24	+ 11.102	23 27 0.4	- 0.04	1 29.71	- 1.245	18 1 22.95	
Mon.	23	18 4 19.69	11.102	23 26 47.1	+ 1.14	0 59.83	1.245	18 5 19.51	
Tues.	24	18 8 46.12	11.100	23 26 5.6	2.32	0 29.95	1.243	18 9 16.07	
Wed.	25	18 13 12.50	+ 11.097	23 24 55.7	+ 3.50	0 0.13	- 1.241	18 13 12.63	
Thur.	26	18 17 38.82	11.094	23 23 17.6	4.68	0 29.64	1.237	18 17 9.18	
Frid.	27	18 22 5.03	11.089	23 21 11.3	5.85	0 59.29	1.233	18 21 5.74	
Sat.	28	18 26 31.11	+ 11.084	23 18 36.8	+ 7.02	1 28.81	- 1.227	18 25 2.30	
SUN.	29	18 30 57.04	11.077	23 15 34.2	8.19	1 58.18	1.220	18 28 58.86	
Mon.	30	18 35 22.78	11.068	23 12 3.6	9.36	2 27.36	1.211	18 32 55.41	
Tues.	31	18 39 48.29	11.058	23 8 5.1	10.52	2 56.32	1.202	18 36 51.97	
Wed.	32	18 44 13.58	+ 11.049	S. 23 3 38.8	+ 11.68	3 25.05	- 1.192	18 40 48.53	

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
 The sign — prefixed to the hourly change of declination indicates that south declinations are increasing; the sign + indicates that south declinations are decreasing.

Diff. for 1 Hour,
 + 9^s.8565.
 (Table III.)

AT GREENWICH MEAN NOON.

		THE SUN'S							
Day of the Month.	Day of the Year.	TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.	
		λ	λ'						
		$^{\circ}$	' "	"	"			h m s	
1	335	248	37 25.8	36 28.9	152.10	— 1.14	9.9937801	—27.4	7 20 12.43
2	336	249	38 16.9	37 19.9	152.16	1.11	9.9937153	26.6	7 16 16.52
3	337	250	39 9.4	38 12.2	152.22	1.07	9.9936525	25.8	7 12 20.61
4	338	251	40 3.3	39 6.0	152.28	— 0.98	9.9935915	—25.0	7 8 24.70
5	339	252	40 58.5	40 1.0	152.33	0.88	9.9935322	24.3	7 4 28.79
6	340	253	41 55.0	40 57.3	152.38	0.77	9.9934747	23.6	7 0 32.88
7	341	254	42 52.6	41 54.8	152.43	— 0.65	9.9934188	—22.9	6 56 36.97
8	342	255	43 51.4	42 53.4	152.47	0.52	9.9933645	22.3	6 52 41.06
9	343	256	44 51.2	43 53.1	152.51	0.40	9.9933118	21.7	6 48 45.14
10	344	257	45 52.0	44 53.7	152.55	— 0.27	9.9932606	—21.1	6 44 49.23
11	345	258	46 53.7	45 55.2	152.59	0.17	9.9932109	20.4	6 40 53.32
12	346	259	47 56.2	46 57.5	152.62	0.09	9.9931628	19.8	6 36 57.41
13	347	260	48 59.4	48 0.6	152.65	— 0.02	9.9931162	—19.1	6 33 1.50
14	348	261	50 3.2	49 4.2	152.67	+ 0.01	9.9930712	18.4	6 29 5.59
15	349	262	51 7.6	50 8.5	152.69	+ 0.02	9.9930279	17.7	6 25 9.68
16	350	263	52 12.5	51 13.1	152.71	0.00	9.9929864	—16.9	6 21 13.76
17	351	264	53 17.7	52 18.2	152.72	— 0.05	9.9929467	16.0	6 17 17.85
18	352	265	54 23.3	53 23.6	152.74	0.14	9.9929090	15.1	6 13 21.94
19	353	266	55 29.1	54 29.3	152.75	— 0.24	9.9928735	—14.1	6 9 26.03
20	354	267	56 35.1	55 35.1	152.76	0.36	9.9928403	13.2	6 5 30.12
21	355	268	57 41.4	56 41.2	152.76	0.50	9.9928095	12.3	6 1 34.21
22	356	269	58 47.8	57 47.4	152.77	— 0.63	9.9927813	—11.2	5 57 38.30
23	357	270	59 54.4	58 53.9	152.78	0.76	9.9927558	10.0	5 53 42.38
24	358	272	1 1.3	0 0.6	152.79	0.89	9.9927332	8.8	5 49 46.47
25	359	273	2 8.4	1 7.5	152.80	— 0.96	9.9927135	— 7.6	5 45 50.56
26	360	274	3 15.8	2 14.7	152.81	1.03	9.9926967	6.4	5 41 54.65
27	361	275	4 23.6	3 22.3	152.83	1.08	9.9926828	5.2	5 37 58.74
28	362	276	5 31.7	4 30.3	152.84	— 1.09	9.9926717	— 4.0	5 34 2.83
29	363	277	6 40.2	5 38.6	152.86	1.06	9.9926635	2.9	5 30 6.91
30	364	278	7 49.2	6 47.4	152.88	1.02	9.9926578	1.8	5 26 11.00
31	365	279	8 58.5	7 56.6	152.90	0.94	9.9926547	— 0.8	5 22 15.09
32	366	280	10 8.2	9 6.1	152.91	— 0.84	9.9926540	+ 0.2	5 18 19.18

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0.0 of the Besselian fictitious year.

Diff. for 1 Hour,
—9^s.8296,
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	
	' "	' "	' "	"	' "	"	h m	m	d
1	15 38.8	15 31.3	57 18.9	- 2.34	56 51.4	- 2.23	17 24.6	+ 1.95	20.2
2	15 24.3	15 17.7	56 25.5	2.09	56 1.3	1.93	18 10.2	1.86	21.2
3	15 11.7	15 6.2	55 39.2	1.75	55 19.2	1.57	18 54.1	1.81	22.2
4	15 1.4	14 57.3	55 1.6	- 1.38	54 46.2	- 1.19	19 37.3	+ 1.80	23.2
5	14 53.7	14 50.7	54 33.0	1.00	54 22.2	0.81	20 20.6	1.82	24.2
6	14 48.3	14 46.5	54 13.5	0.64	54 6.9	0.47	21 4.6	1.86	25.2
7	14 45.3	14 44.5	54 2.2	- 0.31	53 59.4	- 0.16	21 49.8	+ 1.91	26.2
8	14 44.2	14 44.3	53 58.3	- 0.03	53 58.7	+ 0.10	22 36.2	1.96	27.2
9	14 44.9	14 45.8	54 0.7	+ 0.22	54 4.0	0.33	23 23.9	2.01	28.2
10	14 47.0	14 48.6	54 8.6	+ 0.43	54 14.3	+ 0.53	0		29.2
11	14 50.4	14 52.6	54 21.2	0.62	54 29.2	0.70	0 12.4	+ 2.03	0.4
12	14 55.1	14 57.8	54 38.2	0.79	54 48.3	0.88	1 1.3	2.03	1.4
13	15 0.8	15 4.1	54 59.4	+ 0.97	55 11.5	+ 1.06	1 49.9	+ 2.02	2.4
14	15 7.8	15 11.7	55 24.8	1.15	55 39.2	1.25	2 38.1	1.99	3.4
15	15 15.9	15 20.5	55 54.8	1.34	56 11.5	1.44	3 25.6	1.97	4.4
16	15 25.3	15 30.5	56 29.4	+ 1.54	56 48.4	+ 1.63	4 12.7	+ 1.96	5.4
17	15 36.0	15 41.7	57 8.5	1.71	57 29.6	1.79	4 59.8	1.98	6.4
18	15 47.7	15 53.8	57 51.4	1.84	58 13.8	1.88	5 47.8	2.03	7.4
19	16 0.0	16 6.1	58 36.5	+ 1.88	58 59.1	+ 1.85	6 37.5	+ 2.12	8.4
20	16 12.1	16 17.8	59 21.1	1.79	59 42.0	1.68	7 29.7	2.24	9.4
21	16 23.1	16 27.8	60 1.4	1.52	60 18.6	1.32	8 25.1	2.38	10.4
22	16 31.7	16 34.7	60 33.1	+ 1.07	60 44.3	+ 0.78	9 23.9	+ 2.51	11.4
23	16 36.8	16 37.7	60 51.8	+ 0.45	60 55.1	+ 0.10	10 25.3	2.59	12.4
24	16 37.4	16 35.9	60 54.1	- 0.27	60 48.5	- 0.65	11 27.9	2.59	13.4
25	16 33.2	16 29.4	60 38.6	- 1.00	60 24.5	- 1.33	12 29.5	+ 2.51	14.4
26	16 24.5	16 18.7	60 6.6	1.63	59 45.4	1.88	13 28.4	2.38	15.4
27	16 12.2	16 5.2	59 21.6	2.07	58 55.7	2.21	14 23.6	2.22	16.4
28	15 57.7	15 50.2	58 28.4	- 2.30	58 0.5	- 2.34	15 15.0	+ 2.07	17.4
29	15 42.5	15 35.0	57 32.4	2.32	57 4.8	2.25	16 3.2	1.96	18.4
30	15 27.7	15 20.9	56 38.2	2.15	56 13.0	2.03	16 49.1	1.88	19.4
31	15 14.5	15 8.7	55 49.6	1.86	55 28.2	1.68	17 33.5	1.84	20.4
32	15 3.5	14 59.0	55 9.1	- 1.49	54 52.5	- 1.28	18 17.2	+ 1.81	21.4

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 1.					TUESDAY 3.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	9 29 47.07	2.1273	N. 9 19 55.7	-10.047	0	11 7 8.72	1.9523	N. 0 56 35.5	-10.607
1	9 31 54.56	2.1223	9 9 51.9	10.079	1	11 9 5.79	1.9501	0 45 59.3	10.599
2	9 34 1.74	2.1173	8 59 46.2	10.111	2	11 11 2.73	1.9480	0 35 23.6	10.592
3	9 36 8.63	2.1124	8 49 38.6	10.142	3	11 12 59.55	1.9459	0 24 48.3	10.584
4	9 38 15.23	2.1076	8 39 29.2	10.171	4	11 14 56.24	1.9438	0 14 13.5	10.575
5	9 40 21.54	2.1028	8 29 18.1	10.199	5	11 16 52.81	1.9419	N. 0 3 39.3	10.564
6	9 42 27.57	2.0981	8 19 5.3	10.227	6	11 18 49.27	1.9401	S. 0 6 54.2	10.554
7	9 44 33.31	2.0933	8 8 50.8	10.254	7	11 20 45.62	1.9383	0 17 27.2	10.544
8	9 46 38.77	2.0887	7 58 34.8	10.279	8	11 22 41.86	1.9364	0 27 59.5	10.533
9	9 48 43.96	2.0842	7 48 17.3	10.304	9	11 24 37.99	1.9347	0 38 31.1	10.520
10	9 50 48.87	2.0796	7 37 58.3	10.328	10	11 26 34.02	1.9330	0 49 1.9	10.507
11	9 52 53.51	2.0752	7 27 37.9	10.351	11	11 28 29.95	1.9314	0 59 31.9	10.493
12	9 54 57.89	2.0708	7 17 16.2	10.373	12	11 30 25.79	1.9299	1 10 1.1	10.479
13	9 57 2.01	2.0665	7 6 53.2	10.393	13	11 32 21.54	1.9284	1 20 29.4	10.464
14	9 59 5.87	2.0622	6 56 29.0	10.413	14	11 34 17.20	1.9270	1 30 56.8	10.449
15	10 1 9.47	2.0579	6 46 3.6	10.433	15	11 36 12.78	1.9257	1 41 23.3	10.433
16	10 3 12.82	2.0538	6 35 37.0	10.452	16	11 38 8.28	1.9243	1 51 48.8	10.417
17	10 5 15.93	2.0498	6 25 9.4	10.468	17	11 40 3.70	1.9231	2 2 13.3	10.399
18	10 7 18.79	2.0457	6 14 40.8	10.485	18	11 41 59.05	1.9219	2 12 36.7	10.382
19	10 9 21.41	2.0417	6 4 11.2	10.501	19	11 43 54.33	1.9208	2 22 59.1	10.363
20	10 11 23.79	2.0378	5 53 40.7	10.515	20	11 45 49.54	1.9196	2 33 20.3	10.344
21	10 13 25.94	2.0339	5 43 9.4	10.529	21	11 47 44.68	1.9185	2 43 40.4	10.325
22	10 15 27.86	2.0301	5 32 37.2	10.543	22	11 49 39.76	1.9176	2 53 59.3	10.305
23	10 17 29.55	2.0263	N. 5 22 4.3	-10.554	23	11 51 34.79	1.9167	S. 3 4 17.0	-10.284
MONDAY 2.					WEDNESDAY 4.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	10 19 31.01	2.0226	N. 5 11 30.7	-10.565	0	11 53 29.76	1.9158	S. 3 14 33.4	-10.263
1	10 21 32.26	2.0190	5 0 56.5	10.576	1	11 55 24.68	1.9150	3 24 48.5	10.241
2	10 23 33.29	2.0154	4 50 21.6	10.586	2	11 57 19.56	1.9143	3 35 2.3	10.219
3	10 25 34.11	2.0119	4 39 46.2	10.594	3	11 59 14.39	1.9135	3 45 14.8	10.197
4	10 27 34.72	2.0084	4 29 10.3	10.603	4	12 1 9.18	1.9128	3 55 25.9	10.173
5	10 29 35.12	2.0050	4 18 33.9	10.611	5	12 3 3.93	1.9122	4 5 35.5	10.148
6	10 31 35.32	2.0018	4 7 57.0	10.617	6	12 4 58.64	1.9116	4 15 43.7	10.123
7	10 33 35.33	1.9985	3 57 19.9	10.622	7	12 6 53.32	1.9111	4 25 50.3	10.098
8	10 35 35.14	1.9953	3 46 42.4	10.628	8	12 8 47.97	1.9107	4 35 55.5	10.073
9	10 37 34.76	1.9922	3 36 4.6	10.632	9	12 10 42.60	1.9103	4 45 59.1	10.047
10	10 39 34.20	1.9891	3 25 26.6	10.635	10	12 12 37.21	1.9099	4 56 1.1	10.019
11	10 41 33.45	1.9860	3 14 48.4	10.638	11	12 14 31.79	1.9095	5 6 1.4	9.992
12	10 43 32.52	1.9831	3 4 10.1	10.639	12	12 16 26.35	1.9092	5 16 0.1	9.964
13	10 45 31.42	1.9802	2 53 31.7	10.640	13	12 18 20.90	1.9091	5 25 57.1	9.936
14	10 47 30.14	1.9773	2 42 53.3	10.641	14	12 20 15.44	1.9090	5 35 52.4	9.907
15	10 49 28.70	1.9746	2 32 14.8	10.641	15	12 22 9.98	1.9089	5 45 45.9	9.877
16	10 51 27.09	1.9718	2 21 36.4	10.639	16	12 24 4.51	1.9088	5 55 37.6	9.847
17	10 53 25.32	1.9692	2 10 58.1	10.638	17	12 25 59.03	1.9088	6 5 27.5	9.816
18	10 55 23.39	1.9666	2 0 19.9	10.636	18	12 27 53.56	1.9088	6 15 15.5	9.784
19	10 57 21.31	1.9641	1 49 41.8	10.633	19	12 29 48.09	1.9089	6 25 1.6	9.753
20	10 59 19.08	1.9616	1 39 4.0	10.628	20	12 31 42.63	1.9090	6 34 45.8	9.721
21	11 1 16.70	1.9592	1 28 26.4	10.624	21	12 33 37.17	1.9092	6 44 28.1	9.688
22	11 3 14.18	1.9568	1 17 49.1	10.619	22	12 35 31.73	1.9094	6 54 8.4	9.654
23	11 5 11.52	1.9545	1 7 12.1	10.613	23	12 37 26.30	1.9097	7 3 46.6	9.619
24	11 7 8.72	1.9523	N. 0 56 35.5	-10.607	24	12 39 20.89	1.9100	S. 7 13 22.7	-9.585

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.			
THURSDAY 5.							SATURDAY 7.									
	h	m	s	s	°	'	"		h	m	s	s	°	'	"	
0	12	39	20.89	1.9100	S. 7	13	22.7	-9.585	0	14	12	7.74	1.9685	S. 14	3	37.6
1	12	41	15.50	1.9103	7	22	56.8	9.551	1	14	14	5.91	1.9704	14	10	54.0
2	12	43	10.13	1.9107	7	32	28.8	9.515	2	14	16	4.19	1.9723	14	18	6.7
3	12	45	4.78	1.9112	7	41	58.6	9.479	3	14	18	2.59	1.9743	14	25	15.8
4	12	46	59.47	1.9117	7	51	26.3	9.443	4	14	20	1.10	1.9762	14	32	21.1
5	12	48	54.18	1.9122	8	0	51.8	9.406	5	14	21	59.73	1.9782	14	39	22.7
6	12	50	48.93	1.9128	8	10	15.0	9.368	6	14	23	58.48	1.9803	14	46	20.6
7	12	52	43.71	1.9133	8	19	35.9	9.329	7	14	25	57.36	1.9823	14	53	14.6
8	12	54	38.53	1.9140	8	28	54.5	9.291	8	14	27	56.35	1.9842	15	0	4.8
9	12	56	33.39	1.9147	8	38	10.8	9.252	9	14	29	55.46	1.9862	15	6	51.1
10	12	58	28.29	1.9154	8	47	24.7	9.212	10	14	31	54.69	1.9883	15	13	33.5
11	13	0	23.24	1.9163	8	56	36.2	9.172	11	14	33	54.05	1.9903	15	20	12.0
12	13	2	18.24	1.9171	9	5	45.3	9.131	12	14	35	53.53	1.9924	15	26	46.6
13	13	4	13.29	1.9179	9	14	51.9	9.089	13	14	37	53.14	1.9945	15	33	17.1
14	13	6	8.39	1.9188	9	23	56.0	9.047	14	14	39	52.87	1.9966	15	39	43.6
15	13	8	3.54	1.9197	9	32	57.5	9.003	15	14	41	52.73	1.9987	15	46	6.1
16	13	9	58.75	1.9207	9	41	56.4	8.961	16	14	43	52.71	2.0008	15	52	24.5
17	13	11	54.02	1.9218	9	50	52.8	8.918	17	14	45	52.82	2.0028	15	58	38.7
18	13	13	49.36	1.9228	9	59	46.5	8.873	18	14	47	53.05	2.0049	16	4	48.8
19	13	15	44.76	1.9238	10	8	37.6	8.829	19	14	49	53.41	2.0070	16	10	54.7
20	13	17	40.22	1.9249	10	17	26.0	8.784	20	14	51	53.89	2.0091	16	16	56.4
21	13	19	35.75	1.9261	10	26	11.7	8.738	21	14	53	54.50	2.0113	16	22	53.9
22	13	21	31.35	1.9273	10	34	54.6	8.692	22	14	55	55.24	2.0134	16	28	47.1
23	13	23	27.03	1.9286	S. 10	43	34.7	-8.645	23	14	57	56.11	2.0155	S. 16	34	36.0
FRIDAY 6.							SUNDAY 8.									
	h	m	s	s	°	'	"		h	m	s	s	°	'	"	
0	13	25	22.78	1.9298	S. 10	52	12.0	-8.598	0	14	59	57.10	2.0176	S. 16	40	20.6
1	13	27	18.61	1.9311	11	0	46.5	8.550	1	15	1	58.22	2.0198	16	46	0.8
2	13	29	14.51	1.9323	11	9	18.0	8.502	2	15	3	59.48	2.0220	16	51	36.6
3	13	31	10.49	1.9337	11	17	46.7	8.453	3	15	6	0.86	2.0241	16	57	8.0
4	13	33	6.56	1.9352	11	26	12.4	8.403	4	15	8	2.37	2.0262	17	2	35.0
5	13	35	2.71	1.9366	11	34	35.1	8.353	5	15	10	4.00	2.0283	17	7	57.5
6	13	36	58.95	1.9380	11	42	54.8	8.303	6	15	12	5.76	2.0304	17	13	15.5
7	13	38	55.27	1.9394	11	51	11.4	8.252	7	15	14	7.65	2.0325	17	18	29.0
8	13	40	51.68	1.9409	11	59	25.0	8.201	8	15	16	9.66	2.0346	17	23	37.8
9	13	42	48.18	1.9425	12	7	35.5	8.148	9	15	18	11.80	2.0368	17	28	42.1
10	13	44	44.78	1.9441	12	15	42.8	8.096	10	15	20	14.07	2.0388	17	33	41.8
11	13	46	41.47	1.9457	12	23	47.0	8.043	11	15	22	16.46	2.0409	17	38	36.9
12	13	48	38.26	1.9473	12	31	47.9	7.988	12	15	24	18.98	2.0431	17	43	27.3
13	13	50	35.15	1.9489	12	39	45.6	7.934	13	15	26	21.63	2.0452	17	48	13.0
14	13	52	32.13	1.9505	12	47	40.0	7.879	14	15	28	24.40	2.0472	17	52	53.9
15	13	54	29.21	1.9523	12	55	31.1	7.824	15	15	30	27.29	2.0493	17	57	30.1
16	13	56	26.40	1.9540	13	3	18.9	7.769	16	15	32	30.31	2.0513	18	2	1.5
17	13	58	23.69	1.9558	13	11	3.4	7.713	17	15	34	33.45	2.0533	18	6	28.1
18	14	0	21.09	1.9575	13	18	44.4	7.655	18	15	36	36.71	2.0554	18	10	49.9
19	14	2	18.59	1.9593	13	26	22.0	7.598	19	15	38	40.10	2.0574	18	15	6.8
20	14	4	16.20	1.9611	13	33	56.1	7.540	20	15	40	43.60	2.0594	18	19	18.8
21	14	6	13.92	1.9629	13	41	26.8	7.483	21	15	42	47.23	2.0614	18	23	25.9
22	14	8	11.75	1.9648	13	48	54.0	7.423	22	15	44	50.97	2.0634	18	27	28.1
23	14	10	9.69	1.9666	13	56	17.6	7.363	23	15	46	54.83	2.0654	18	31	25.3
24	14	12	7.74	1.9685	S. 14	3	37.6	-7.303	24	15	48	58.82	2.0674	S. 18	35	17.5

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 9.					WEDNESDAY 11.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	15 48 58.82	2.0674	S. 18 35 17.5	-3.828	0	17 30 0.34	2.1307	S. 19 56 45.0	+0.528
1	15 51 2.92	2.0693	18 39 4.7	3.745	1	17 32 8.20	2.1313	19 56 10.4	0.624
2	15 53 7.13	2.0712	18 42 46.9	3.661	2	17 34 16.09	2.1317	19 55 30.1	0.719
3	15 55 11.46	2.0731	18 46 24.0	3.576	3	17 36 24.00	2.1321	19 54 44.1	0.814
4	15 57 15.90	2.0750	18 49 56.0	3.491	4	17 38 31.94	2.1326	19 53 52.4	0.910
5	15 59 20.46	2.0768	18 53 22.9	3.406	5	17 40 39.91	2.1329	19 52 54.9	1.006
6	16 1 25.12	2.0787	18 56 44.7	3.320	6	17 42 47.89	2.1333	19 51 51.7	1.101
7	16 3 29.90	2.0805	19 0 1.3	3.234	7	17 44 55.90	2.1337	19 50 42.8	1.196
8	16 5 34.78	2.0823	19 3 12.8	3.148	8	17 47 3.93	2.1339	19 49 28.2	1.291
9	16 7 39.77	2.0840	19 6 19.1	3.062	9	17 49 11.97	2.1341	19 48 7.9	1.386
10	16 9 44.86	2.0858	19 9 20.2	2.974	10	17 51 20.02	2.1343	19 46 41.9	1.482
11	16 11 50.06	2.0875	19 12 16.0	2.887	11	17 53 28.08	2.1344	19 45 10.1	1.578
12	16 13 55.36	2.0893	19 15 6.6	2.799	12	17 55 36.15	2.1346	19 43 32.6	1.673
13	16 16 0.77	2.0909	19 17 51.9	2.711	13	17 57 44.23	2.1347	19 41 49.4	1.768
14	16 18 6.27	2.0925	19 20 31.9	2.622	14	17 59 52.31	2.1348	19 40 0.5	1.863
15	16 20 11.87	2.0942	19 23 6.5	2.533	15	18 2 0.40	2.1348	19 38 5.9	1.958
16	16 22 17.57	2.0958	19 25 35.8	2.444	16	18 4 8.48	2.1348	19 36 5.6	2.053
17	16 24 23.36	2.0973	19 27 59.8	2.355	17	18 6 16.57	2.1348	19 33 59.6	2.147
18	16 26 29.25	2.0989	19 30 18.4	2.265	18	18 8 24.65	2.1346	19 31 48.0	2.241
19	16 28 35.23	2.1003	19 32 31.6	2.175	19	18 10 32.72	2.1345	19 29 30.7	2.336
20	16 30 41.29	2.1018	19 34 39.4	2.085	20	18 12 40.79	2.1344	19 27 7.7	2.431
21	16 32 47.45	2.1034	19 36 41.8	1.994	21	18 14 48.85	2.1343	19 24 39.0	2.525
22	16 34 53.70	2.1048	19 38 38.7	1.903	22	18 16 56.90	2.1340	19 22 4.7	2.619
23	16 37 0.03	2.1062	S. 19 40 30.2	-1.812	23	18 19 4.93	2.1338	S. 19 19 24.7	+2.713
TUESDAY 10.					THURSDAY 12.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	16 39 6.44	2.1076	S. 19 42 16.2	-1.721	0	18 21 12.95	2.1335	S. 19 16 39.1	+2.807
1	16 41 12.94	2.1089	19 43 56.7	1.629	1	18 23 20.95	2.1333	19 13 47.9	2.901
2	16 43 19.51	2.1103	19 45 31.7	1.538	2	18 25 28.94	2.1329	19 10 51.0	2.994
3	16 45 26.17	2.1116	19 47 1.2	1.445	3	18 27 36.90	2.1325	19 7 48.6	3.088
4	16 47 32.90	2.1128	19 48 25.1	1.353	4	18 29 44.84	2.1322	19 4 40.5	3.181
5	16 49 39.70	2.1140	19 49 43.5	1.260	5	18 31 52.76	2.1318	19 1 26.9	3.273
6	16 51 46.58	2.1152	19 50 56.3	1.168	6	18 34 0.65	2.1313	18 58 7.7	3.366
7	16 53 53.52	2.1163	19 52 3.6	1.075	7	18 36 8.52	2.1308	18 54 43.0	3.458
8	16 56 0.53	2.1174	19 53 5.3	0.982	8	18 38 16.35	2.1303	18 51 12.7	3.551
9	16 58 7.61	2.1185	19 54 1.4	0.888	9	18 40 24.15	2.1298	18 47 36.9	3.643
10	17 0 14.75	2.1196	19 54 51.9	0.795	10	18 42 31.92	2.1293	18 43 55.5	3.735
11	17 2 21.96	2.1207	19 55 36.8	0.701	11	18 44 39.66	2.1287	18 40 8.7	3.826
12	17 4 29.23	2.1216	19 56 16.0	0.607	12	18 46 47.36	2.1280	18 36 16.4	3.918
13	17 6 36.55	2.1225	19 56 49.6	0.513	13	18 48 55.02	2.1274	18 32 18.6	4.009
14	17 8 43.93	2.1234	19 57 17.6	0.419	14	18 51 2.65	2.1268	18 28 15.3	4.100
15	17 10 51.36	2.1243	19 57 39.9	0.324	15	18 53 10.24	2.1261	18 24 6.6	4.190
16	17 12 58.85	2.1252	19 57 56.5	0.230	16	18 55 17.78	2.1253	18 19 52.5	4.280
17	17 15 6.38	2.1259	19 58 7.5	0.136	17	18 57 25.28	2.1247	18 15 33.0	4.370
18	17 17 13.96	2.1268	19 58 12.8	-0.041	18	18 59 32.74	2.1239	18 11 8.1	4.460
19	17 19 21.59	2.1275	19 58 12.4	+0.054	19	19 1 40.15	2.1232	18 6 37.8	4.549
20	17 21 29.26	2.1283	19 58 6.3	0.149	20	19 3 47.52	2.1224	18 2 2.2	4.638
21	17 23 36.98	2.1289	19 57 54.5	0.244	21	19 5 54.84	2.1215	17 57 21.3	4.727
22	17 25 44.73	2.1295	19 57 37.0	0.339	22	19 8 2.10	2.1207	17 52 35.0	4.816
23	17 27 52.52	2.1301	19 57 13.8	0.433	23	19 10 9.32	2.1198	17 47 43.4	4.903
24	17 30 0.34	2.1307	S. 19 56 45.0	+0.528	24	19 12 16.48	2.1189	S. 17 42 46.6	+4.991

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 13.					SUNDAY 15.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	19 12 16.48	2.1189	S. 17 42 46.6	+4.991	0	20 52 50.58	2.0722	S. 12 10 21.0	+ 8.670
1	19 14 23.59	2.1181	17 37 44.5	5.078	1	20 54 54.89	2.0714	12 1 38.9	8.734
2	19 16 30.65	2.1173	17 32 37.2	5.165	2	20 56 59.15	2.0706	11 52 52.9	8.797
3	19 18 37.66	2.1163	17 27 24.7	5.252	3	20 59 3.36	2.0699	11 44 3.2	8.859
4	19 20 44.61	2.1153	17 22 7.0	5.338	4	21 1 7.54	2.0693	11 35 9.8	8.921
5	19 22 51.50	2.1144	17 16 44.2	5.423	5	21 3 11.67	2.0686	11 26 12.7	8.983
6	19 24 58.34	2.1135	17 11 16.2	5.509	6	21 5 15.77	2.0680	11 17 11.9	9.043
7	19 27 5.12	2.1125	17 5 43.1	5.594	7	21 7 19.83	2.0673	11 8 7.5	9.103
8	19 29 11.84	2.1116	17 0 4.9	5.678	8	21 9 23.85	2.0668	10 58 59.5	9.163
9	19 31 18.51	2.1106	16 54 21.7	5.763	9	21 11 27.84	2.0662	10 49 48.0	9.221
10	19 33 25.11	2.1095	16 48 33.4	5.847	10	21 13 31.79	2.0656	10 40 33.0	9.279
11	19 35 31.65	2.1085	16 42 40.1	5.930	11	21 15 35.71	2.0652	10 31 14.5	9.337
12	19 37 38.13	2.1075	16 36 41.8	6.013	12	21 17 39.61	2.0647	10 21 52.6	9.393
13	19 39 44.55	2.1065	16 30 38.5	6.096	13	21 19 43.47	2.0642	10 12 27.3	9.449
14	19 41 50.91	2.1055	16 24 30.3	6.178	14	21 21 47.31	2.0638	10 2 58.7	9.505
15	19 43 57.21	2.1045	16 18 17.2	6.259	15	21 23 51.13	2.0634	9 53 26.7	9.560
16	19 46 3.45	2.1034	16 11 59.2	6.340	16	21 25 54.92	2.0630	9 43 51.5	9.614
17	19 48 9.62	2.1023	16 5 36.4	6.421	17	21 27 58.69	2.0628	9 34 13.0	9.668
18	19 50 15.73	2.1013	15 59 8.7	6.502	18	21 30 2.45	2.0625	9 24 31.3	9.721
19	19 52 21.77	2.1003	15 52 36.2	6.582	19	21 32 6.19	2.0622	9 14 46.5	9.773
20	19 54 27.76	2.0993	15 45 58.9	6.661	20	21 34 9.91	2.0619	9 4 58.6	9.825
21	19 56 33.68	2.0982	15 39 16.9	6.739	21	21 36 13.62	2.0618	8 55 7.5	9.876
22	19 58 39.54	2.0971	15 32 30.2	6.818	22	21 38 17.32	2.0617	8 45 13.5	9.925
23	20 0 45.33	2.0960	S. 15 25 38.8	+6.896	23	21 40 21.02	2.0616	S. 8 35 16.5	+ 9.975
SATURDAY 14.					MONDAY 16.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	20 2 51.06	2.0950	S. 15 18 42.7	+6.973	0	21 42 24.71	2.0615	S. 8 25 16.5	+10.024
1	20 4 56.73	2.0940	15 11 42.0	7.050	1	21 44 28.40	2.0615	8 15 13.6	10.073
2	20 7 2.34	2.0929	15 4 36.7	7.126	2	21 46 32.09	2.0615	8 5 7.8	10.120
3	20 9 7.88	2.0918	14 57 26.9	7.202	3	21 48 35.78	2.0615	7 54 59.2	10.167
4	20 11 13.36	2.0908	14 50 12.5	7.278	4	21 50 39.47	2.0616	7 44 47.8	10.213
5	20 13 18.78	2.0898	14 42 53.6	7.353	5	21 52 43.17	2.0617	7 34 33.7	10.258
6	20 15 24.13	2.0887	14 35 30.2	7.427	6	21 54 46.87	2.0618	7 24 16.9	10.303
7	20 17 29.42	2.0877	14 28 2.4	7.500	7	21 56 50.59	2.0621	7 13 57.4	10.347
8	20 19 34.65	2.0867	14 20 30.2	7.573	8	21 58 54.32	2.0623	7 3 35.3	10.390
9	20 21 39.82	2.0857	14 12 53.6	7.647	9	22 0 58.07	2.0627	6 53 10.6	10.433
10	20 23 44.93	2.0847	14 5 12.6	7.719	10	22 3 1.84	2.0630	6 42 43.4	10.474
11	20 25 49.98	2.0837	13 57 27.3	7.791	11	22 5 5.63	2.0633	6 32 13.7	10.516
12	20 27 54.97	2.0827	13 49 37.7	7.862	12	22 7 9.44	2.0638	6 21 41.5	10.556
13	20 29 59.90	2.0818	13 41 43.9	7.933	13	22 9 13.28	2.0643	6 11 7.0	10.595
14	20 32 4.78	2.0808	13 33 45.8	8.003	14	22 11 17.15	2.0648	6 0 30.1	10.634
15	20 34 9.60	2.0798	13 25 43.6	8.072	15	22 13 21.05	2.0653	5 49 50.9	10.673
16	20 36 14.36	2.0789	13 17 37.2	8.141	16	22 15 24.98	2.0658	5 39 9.4	10.710
17	20 38 19.07	2.0781	13 9 26.7	8.209	17	22 17 28.95	2.0665	5 28 25.7	10.747
18	20 40 23.73	2.0772	13 1 12.1	8.277	18	22 19 32.96	2.0673	5 17 39.8	10.783
19	20 42 28.33	2.0762	12 52 53.5	8.343	19	22 21 37.02	2.0680	5 6 51.8	10.818
20	20 44 32.88	2.0754	12 44 30.9	8.410	20	22 23 41.12	2.0688	4 56 1.7	10.852
21	20 46 37.38	2.0746	12 36 4.3	8.477	21	22 25 45.27	2.0696	4 45 9.6	10.885
22	20 48 41.83	2.0738	12 27 33.7	8.542	22	22 27 49.47	2.0704	4 34 15.5	10.918
23	20 50 46.23	2.0729	12 18 59.3	8.606	23	22 29 53.72	2.0713	4 23 19.4	10.950
24	20 52 50.58	2.0722	S. 12 10 21.0	+8.670	24	22 31 58.03	2.0723	S. 4 12 21.5	+10.981

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 17.					THURSDAY 19.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	22 31 58.03	2.0723	S. 4 12 21.5	+10.981	0	0 13 35.20	2.1832	N. 4 54 44.0	+11.454
1	22 34 2.40	2.0734	4 1 21.7	11.013	1	0 15 46.30	2.1868	5 6 10.9	11.440
2	22 36 6.84	2.0745	3 50 20.0	11.043	2	0 17 57.62	2.1905	5 17 36.8	11.424
3	22 38 11.34	2.0756	3 39 16.6	11.072	3	0 20 9.16	2.1943	5 29 1.8	11.408
4	22 40 15.91	2.0768	3 28 11.4	11.100	4	0 22 20.93	2.1982	5 40 25.7	11.389
5	22 42 20.55	2.0780	3 17 4.6	11.128	5	0 24 32.94	2.2021	5 51 48.5	11.370
6	22 44 25.27	2.0793	3 5 56.1	11.154	6	0 26 45.18	2.2060	6 3 10.1	11.350
7	22 46 30.06	2.0806	2 54 46.1	11.179	7	0 28 57.66	2.2099	6 14 30.5	11.328
8	22 48 34.94	2.0821	2 43 34.6	11.204	8	0 31 10.37	2.2139	6 25 49.5	11.306
9	22 50 39.91	2.0835	2 32 21.6	11.228	9	0 33 23.33	2.2181	6 37 7.2	11.283
10	22 52 44.96	2.0849	2 21 7.2	11.252	10	0 35 36.54	2.2223	6 48 23.4	11.257
11	22 54 50.10	2.0865	2 9 51.4	11.274	11	0 37 50.00	2.2264	6 59 38.0	11.230
12	22 56 55.34	2.0882	1 58 34.3	11.296	12	0 40 3.71	2.2307	7 10 51.0	11.203
13	22 59 0.68	2.0898	1 47 15.9	11.317	13	0 42 17.68	2.2349	7 22 2.3	11.171
14	23 1 6.12	2.0915	1 35 56.3	11.336	14	0 44 31.90	2.2393	7 33 11.9	11.144
15	23 3 11.66	2.0933	1 24 35.6	11.355	15	0 46 46.39	2.2437	7 44 19.6	11.113
16	23 5 17.31	2.0951	1 13 13.7	11.374	16	0 49 1.14	2.2481	7 55 25.4	11.081
17	23 7 23.07	2.0970	1 1 50.7	11.392	17	0 51 16.16	2.2526	8 6 29.3	11.048
18	23 9 28.95	2.0990	0 50 26.7	11.408	18	0 53 31.45	2.2571	8 17 31.1	11.013
19	23 11 34.95	2.1010	0 39 1.8	11.423	19	0 55 47.01	2.2617	8 28 30.8	10.976
20	23 13 41.07	2.1030	0 27 36.0	11.438	20	0 58 2.85	2.2663	8 39 28.2	10.938
21	23 15 47.31	2.1051	0 16 9.3	11.452	21	1 0 18.96	2.2708	8 50 23.3	10.899
22	23 17 53.68	2.1073	S. 0 4 41.8	11.464	22	1 2 35.35	2.2756	9 1 16.1	10.860
23	23 20 0.18	2.1094	N. 0 6 46.4	+11.477	23	1 4 52.03	2.2803	N. 9 12 6.5	+10.818
WEDNESDAY 18.					FRIDAY 20.				
0	23 22 6.81	2.1117	N. 0 18 15.4	+11.488	0	1 7 8.99	2.2851	N. 9 22 54.3	+10.775
1	23 24 13.58	2.1141	0 29 45.0	11.498	1	1 9 26.24	2.2899	9 33 39.5	10.731
2	23 26 20.50	2.1165	0 41 15.1	11.506	2	1 11 43.78	2.2948	9 44 22.0	10.686
3	23 28 27.56	2.1188	0 52 45.7	11.514	3	1 14 1.61	2.2997	9 55 1.8	10.639
4	23 30 34.76	2.1213	1 4 16.8	11.522	4	1 16 19.74	2.3047	10 5 38.7	10.591
5	23 32 42.12	2.1240	1 15 48.3	11.528	5	1 18 38.17	2.3096	10 16 12.7	10.542
6	23 34 49.64	2.1266	1 27 20.2	11.533	6	1 20 56.89	2.3145	10 26 43.7	10.491
7	23 36 57.31	2.1292	1 38 52.3	11.538	7	1 23 15.91	2.3195	10 37 11.6	10.439
8	23 39 5.14	2.1319	1 50 24.7	11.541	8	1 25 35.23	2.3246	10 47 36.4	10.386
9	23 41 13.14	2.1348	2 1 57.2	11.543	9	1 27 54.86	2.3297	10 57 57.9	10.331
10	23 43 21.31	2.1376	2 13 29.9	11.545	10	1 30 14.79	2.3348	11 8 16.1	10.274
11	23 45 29.65	2.1404	2 25 2.6	11.545	11	1 32 35.03	2.3399	11 18 30.8	10.216
12	23 47 38.16	2.1433	2 36 35.3	11.544	12	1 34 55.58	2.3451	11 28 42.0	10.158
13	23 49 46.85	2.1463	2 48 7.9	11.542	13	1 37 16.44	2.3503	11 38 49.7	10.098
14	23 51 55.72	2.1494	2 59 40.4	11.540	14	1 39 37.61	2.3554	11 48 53.7	10.035
15	23 54 4.78	2.1526	3 11 12.7	11.536	15	1 41 59.09	2.3607	11 58 53.9	9.972
16	23 56 14.03	2.1558	3 22 44.7	11.531	16	1 44 20.89	2.3659	12 8 50.3	9.907
17	23 58 23.47	2.1589	3 34 16.4	11.525	17	1 46 43.00	2.3712	12 18 42.7	9.841
18	0 0 33.10	2.1622	3 45 47.7	11.518	18	1 49 5.43	2.3765	12 28 31.2	9.773
19	0 2 42.93	2.1656	3 57 18.6	11.511	19	1 51 28.18	2.3818	12 38 15.5	9.704
20	0 4 52.97	2.1690	4 8 49.0	11.502	20	1 53 51.25	2.3871	12 47 55.7	9.634
21	0 7 3.21	2.1724	4 20 18.8	11.491	21	1 56 14.63	2.3924	12 57 31.6	9.562
22	0 9 13.66	2.1759	4 31 47.9	11.480	22	1 58 38.34	2.3978	13 7 3.1	9.488
23	0 11 24.32	2.1795	4 43 16.4	11.468	23	2 1 2.36	2.4030	13 16 30.2	9.413
24	0 13 35.20	2.1832	N. 4 54 44.0	+11.454	24	2 3 26.70	2.4083	N. 13 25 52.7	+9.337

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 21.					MONDAY 23.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	2 3 26.70	2.4083	N.13 25 52.7	+9.337	0	4 4 47.99	2.6250	N.18 59 36.3	+4.073
1	2 5 51.36	2.4138	13 35 10.6	9.260	1	4 7 25.82	2.6319	19 3 36.6	3.935
2	2 8 16.35	2.4192	13 44 23.9	9.181	2	4 10 3.82	2.6347	19 7 28.5	3.796
3	2 10 41.66	2.4244	13 53 32.3	9.100	3	4 12 41.98	2.6373	19 11 12.1	3.657
4	2 13 7.28	2.4298	14 2 35.9	9.018	4	4 15 20.30	2.6399	19 14 47.3	3.516
5	2 15 33.23	2.4352	14 11 34.5	8.934	5	4 17 58.77	2.6424	19 18 14.0	3.375
6	2 17 59.50	2.4404	14 20 28.0	8.849	6	4 20 37.39	2.6448	19 21 32.3	3.233
7	2 20 26.08	2.4458	14 29 16.4	8.763	7	4 23 16.15	2.6470	19 24 42.0	3.090
8	2 22 52.99	2.4512	14 37 59.6	8.675	8	4 25 55.03	2.6491	19 27 43.1	2.948
9	2 25 20.22	2.4564	14 46 37.4	8.586	9	4 28 34.04	2.6511	19 30 35.7	2.804
10	2 27 47.76	2.4617	14 55 9.9	8.496	10	4 31 13.16	2.6530	19 33 19.6	2.659
11	2 30 15.62	2.4670	15 3 36.9	8.403	11	4 33 52.40	2.6547	19 35 54.8	2.514
12	2 32 43.80	2.4723	15 11 58.3	8.309	12	4 36 31.73	2.6563	19 38 21.3	2.369
13	2 35 12.29	2.4775	15 20 14.0	8.214	13	4 39 11.16	2.6579	19 40 39.1	2.223
14	2 37 41.10	2.4827	15 28 24.0	8.118	14	4 41 50.68	2.6593	19 42 48.1	2.077
15	2 40 10.22	2.4878	15 36 28.2	8.021	15	4 44 30.27	2.6605	19 44 48.3	1.930
16	2 42 39.64	2.4929	15 44 26.5	7.921	16	4 47 9.94	2.6617	19 46 39.7	1.783
17	2 45 9.37	2.4981	15 52 18.7	7.820	17	4 49 49.67	2.6626	19 48 22.3	1.636
18	2 47 39.41	2.5033	16 0 4.9	7.718	18	4 52 29.45	2.6635	19 49 56.0	1.488
19	2 50 9.76	2.5083	16 7 44.9	7.615	19	4 55 9.29	2.6643	19 51 20.9	1.340
20	2 52 40.41	2.5133	16 15 18.7	7.511	20	4 57 49.16	2.6648	19 52 36.8	1.192
21	2 55 11.36	2.5183	16 22 46.2	7.404	21	5 0 29.07	2.6654	19 53 43.9	1.044
22	2 57 42.60	2.5232	16 30 7.2	7.296	22	5 3 9.01	2.6658	19 54 42.1	0.896
23	3 0 14.14	2.5281	N.16 37 21.7	+7.188	23	5 5 48.97	2.6660	N.19 55 31.4	+0.747
SUNDAY 22.					TUESDAY 24.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	3 2 45.97	2.5329	N.16 44 29.7	+7.078	0	5 8 28.93	2.6661	N.19 56 11.7	+0.598
1	3 5 18.09	2.5378	16 51 31.1	6.967	1	5 11 8.90	2.6661	19 56 43.1	0.449
2	3 7 50.50	2.5425	16 58 25.7	6.853	2	5 13 48.86	2.6658	19 57 5.6	0.300
3	3 10 23.19	2.5472	17 5 13.5	6.739	3	5 16 28.80	2.6655	19 57 19.1	0.151
4	3 12 56.16	2.5518	17 11 54.4	6.624	4	5 19 8.72	2.6652	19 57 23.7	+0.003
5	3 15 29.41	2.5564	17 18 28.4	6.508	5	5 21 48.62	2.6646	19 57 19.4	-0.147
6	3 18 2.93	2.5609	17 24 55.3	6.389	6	5 24 28.47	2.6638	19 57 6.1	0.295
7	3 20 36.72	2.5654	17 31 15.1	6.270	7	5 27 8.28	2.6631	19 56 44.0	0.443
8	3 23 10.78	2.5698	17 37 27.7	6.150	8	5 29 48.04	2.6621	19 56 12.9	0.592
9	3 25 45.10	2.5741	17 43 33.1	6.028	9	5 32 27.73	2.6609	19 55 33.0	0.739
10	3 28 19.67	2.5783	17 49 31.1	5.906	10	5 35 7.35	2.6598	19 54 44.2	0.888
11	3 30 54.50	2.5825	17 55 21.8	5.782	11	5 37 46.90	2.6584	19 53 46.5	1.035
12	3 33 29.57	2.5866	18 1 4.9	5.656	12	5 40 26.36	2.6569	19 52 40.0	1.182
13	3 36 4.89	2.5907	18 6 40.5	5.530	13	5 43 5.73	2.6553	19 51 24.7	1.329
14	3 38 40.45	2.5946	18 12 8.5	5.403	14	5 45 45.00	2.6536	19 50 0.5	1.476
15	3 41 16.24	2.5984	18 17 28.9	5.275	15	5 48 24.16	2.6517	19 48 27.6	1.621
16	3 43 52.26	2.6022	18 22 41.5	5.145	16	5 51 3.20	2.6497	19 46 46.0	1.767
17	3 46 28.50	2.6058	18 27 46.3	5.014	17	5 53 42.12	2.6476	19 44 55.6	1.912
18	3 49 4.96	2.6094	18 32 43.2	4.883	18	5 56 20.91	2.6453	19 42 56.6	2.056
19	3 51 41.63	2.6129	18 37 32.2	4.750	19	5 58 59.56	2.6429	19 40 48.9	2.200
20	3 54 18.51	2.6163	18 42 13.2	4.617	20	6 1 38.06	2.6404	19 38 32.6	2.343
21	3 56 55.59	2.6197	18 46 46.2	4.483	21	6 4 16.41	2.6378	19 36 7.8	2.485
22	3 59 32.87	2.6229	18 51 11.1	4.347	22	6 6 54.60	2.6351	19 33 34.4	2.628
23	4 2 10.34	2.6260	18 55 27.8	4.210	23	6 9 32.62	2.6323	19 30 52.5	2.769
24	4 4 47.99	2.6290	N.18 59 36.3	+4.073	24	6 12 10.47	2.6293	N.19 28 2.1	-2.910

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 25.					FRIDAY 27.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	6 12 10.47	2.6293	N.19 28 2.1	-2.910	0	8 13 14.58	2.3913	N.14 46 0.4	-8.363
1	6 14 48.14	2.6262	19 25 3.3	3.050	1	8 15 37.88	2.3853	14 37 36.2	8.443
2	6 17 25.61	2.6229	19 21 56.1	3.189	2	8 18 0.81	2.3793	14 29 7.2	8.523
3	6 20 2.89	2.6197	19 18 40.6	3.327	3	8 20 23.39	2.3733	14 20 33.4	8.602
4	6 22 39.97	2.6163	19 15 16.9	3.464	4	8 22 45.60	2.3673	14 11 55.0	8.678
5	6 25 16.84	2.6128	19 11 44.9	3.601	5	8 25 7.46	2.3613	14 3 12.1	8.753
6	6 27 53.50	2.6092	19 8 4.8	3.736	6	8 27 28.95	2.3552	13 54 24.7	8.826
7	6 30 29.94	2.6054	19 4 16.6	3.871	7	8 29 50.08	2.3492	13 45 33.0	8.898
8	6 33 6.15	2.6016	19 0 20.3	4.005	8	8 32 10.85	2.3432	13 36 36.9	8.970
9	6 35 42.13	2.5977	18 56 16.0	4.137	9	8 34 31.26	2.3372	13 27 36.6	9.039
10	6 38 17.87	2.5937	18 52 3.8	4.268	10	8 36 51.31	2.3312	13 18 32.2	9.107
11	6 40 53.37	2.5895	18 47 43.8	4.399	11	8 39 11.00	2.3252	13 9 23.8	9.173
12	6 43 28.61	2.5853	18 43 15.9	4.530	12	8 41 30.33	2.3193	13 0 11.4	9.239
13	6 46 3.60	2.5809	18 38 40.2	4.658	13	8 43 49.31	2.3133	12 50 55.1	9.303
14	6 48 38.32	2.5765	18 33 56.9	4.786	14	8 46 7.93	2.3073	12 41 35.1	9.365
15	6 51 12.78	2.5721	18 29 5.9	4.913	15	8 48 26.19	2.3014	12 32 11.3	9.427
16	6 53 46.97	2.5675	18 24 7.4	5.038	16	8 50 44.10	2.2955	12 22 43.9	9.486
17	6 56 20.88	2.5628	18 19 1.4	5.162	17	8 53 1.65	2.2896	12 13 13.0	9.544
18	6 58 54.51	2.5582	18 13 48.0	5.284	18	8 55 18.85	2.2838	12 3 38.6	9.602
19	7 1 27.86	2.5534	18 8 27.3	5.406	19	8 57 35.70	2.2779	11 54 0.8	9.658
20	7 4 0.92	2.5485	18 2 59.3	5.527	20	8 59 52.20	2.2722	11 44 19.7	9.712
21	7 6 33.68	2.5435	17 57 24.1	5.647	21	9 2 8.36	2.2663	11 34 35.4	9.765
22	7 9 6.14	2.5385	17 51 41.7	5.765	22	9 4 24.17	2.2606	11 24 47.9	9.817
23	7 11 38.30	2.5334	N.17 45 52.3	-5.882	23	9 6 39.63	2.2548	N.11 14 57.4	-9.867
THURSDAY 26.					SATURDAY 28.				
0	7 14 10.15	2.5283	N.17 39 55.9	-5.998	0	9 8 54.75	2.2492	N.11 5 3.9	-9.916
1	7 16 41.69	2.5230	17 33 52.6	6.111	1	9 11 9.53	2.2436	10 55 7.5	9.963
2	7 19 12.91	2.5178	17 27 42.6	6.223	2	9 13 23.98	2.2380	10 45 8.3	10.009
3	7 21 43.82	2.5125	17 21 25.8	6.336	3	9 15 38.09	2.2323	10 35 6.4	10.054
4	7 24 14.41	2.5071	17 15 2.3	6.447	4	9 17 51.86	2.2268	10 25 1.8	10.098
5	7 26 44.67	2.5016	17 8 32.2	6.555	5	9 20 5.30	2.2213	10 14 54.6	10.142
6	7 29 14.60	2.4961	17 1 55.7	6.663	6	9 22 18.41	2.2158	10 4 44.8	10.183
7	7 31 44.20	2.4906	16 55 12.7	6.769	7	9 24 31.19	2.2103	9 54 32.7	10.222
8	7 34 13.47	2.4850	16 48 23.4	6.874	8	9 26 43.65	2.2050	9 44 18.2	10.262
9	7 36 42.40	2.4793	16 41 27.8	6.978	9	9 28 55.79	2.1996	9 34 1.3	10.299
10	7 39 10.99	2.4737	16 34 26.0	7.081	10	9 31 7.60	2.1942	9 23 42.3	10.335
11	7 41 39.24	2.4679	16 27 18.1	7.181	11	9 33 19.09	2.1889	9 13 21.1	10.370
12	7 44 7.14	2.4622	16 20 4.3	7.280	12	9 35 30.27	2.1837	9 2 57.9	10.404
13	7 46 34.70	2.4564	16 12 44.5	7.378	13	9 37 41.13	2.1785	8 52 32.6	10.437
14	7 49 1.91	2.4506	16 5 18.9	7.474	14	9 39 51.69	2.1734	8 42 5.4	10.468
15	7 51 28.77	2.4448	15 57 47.6	7.570	15	9 42 1.94	2.1683	8 31 36.4	10.498
16	7 53 55.28	2.4389	15 50 10.5	7.664	16	9 44 11.88	2.1632	8 21 5.6	10.528
17	7 56 21.44	2.4330	15 42 27.9	7.756	17	9 46 21.52	2.1582	8 10 33.0	10.557
18	7 58 47.24	2.4271	15 34 39.8	7.847	18	9 48 30.86	2.1532	7 59 58.8	10.583
19	8 1 12.69	2.4212	15 26 46.3	7.937	19	9 50 39.90	2.1483	7 49 23.0	10.609
20	8 3 37.78	2.4153	15 18 47.4	8.025	20	9 52 48.65	2.1434	7 38 45.7	10.634
21	8 6 2.52	2.4093	15 10 43.3	8.111	21	9 54 57.11	2.1386	7 28 6.9	10.658
22	8 8 26.90	2.4033	15 2 34.1	8.197	22	9 57 5.28	2.1338	7 17 26.7	10.681
23	8 10 50.92	2.3973	14 54 19.7	8.281	23	9 59 13.17	2.1292	7 6 45.2	10.702
24	8 13 14.58	2.3913	N.14 46 0.4	-8.363	24	10 1 20.78	2.1245	N. 6 56 2.5	-10.722

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SUNDAY 29.					TUESDAY 31.				
	h m s	s	° ' "	"		h m s	s	° ' "	"
0	10 1 20.78	2.1245	N. 6 56 2.5	-10.722	0	11 39 0.21	1.9667	S. 1 44 12.8	-10.637
1	10 3 28.11	2.1198	6 45 18.6	10.742	1	11 40 58.15	1.9648	1 54 50.4	10.617
2	10 5 35.16	2.1153	6 34 33.5	10.760	2	11 42 55.99	1.9630	2 5 26.8	10.596
3	10 7 41.94	2.1108	6 23 47.4	10.777	3	11 44 53.71	1.9613	2 16 1.9	10.573
4	10 9 48.46	2.1064	6 13 0.3	10.793	4	11 46 51.34	1.9596	2 26 35.6	10.551
5	10 11 54.71	2.1019	6 2 12.2	10.808	5	11 48 48.86	1.9579	2 37 8.0	10.528
6	10 14 0.69	2.0976	5 51 23.3	10.823	6	11 50 46.29	1.9563	2 47 39.0	10.505
7	10 16 6.42	2.0933	5 40 33.5	10.836	7	11 52 43.62	1.9548	2 58 8.6	10.482
8	10 18 11.89	2.0891	5 29 43.0	10.848	8	11 54 40.86	1.9533	3 8 36.8	10.457
9	10 20 17.11	2.0849	5 18 51.7	10.860	9	11 56 38.01	1.9518	3 19 3.4	10.431
10	10 22 22.08	2.0808	5 7 59.8	10.869	10	11 58 35.08	1.9505	3 29 28.5	10.405
11	10 24 26.80	2.0767	4 57 7.4	10.878	11	12 0 32.07	1.9493	3 39 52.0	10.378
12	10 26 31.28	2.0727	4 46 14.4	10.887	12	12 2 28.99	1.9480	3 50 13.9	10.352
13	10 28 35.52	2.0688	4 35 20.9	10.895	13	12 4 25.83	1.9468	4 0 34.2	10.324
14	10 30 39.53	2.0648	4 24 27.0	10.901	14	12 6 22.60	1.9456	4 10 52.8	10.296
15	10 32 43.30	2.0609	4 13 32.8	10.907	15	12 8 19.30	1.9445	4 21 9.7	10.267
16	10 34 46.84	2.0572	4 2 38.2	10.912	16	12 10 15.94	1.9434	4 31 24.8	10.238
17	10 36 50.16	2.0534	3 51 43.4	10.915	17	12 12 12.51	1.9424	4 41 38.2	10.208
18	10 38 53.25	2.0498	3 40 48.4	10.918	18	12 14 9.03	1.9415	4 51 49.7	10.177
19	10 40 56.13	2.0462	3 29 53.2	10.920	19	12 16 5.49	1.9406	5 1 59.4	10.146
20	10 42 58.79	2.0426	3 18 58.0	10.921	20	12 18 1.90	1.9398	5 12 7.2	10.114
21	10 45 1.24	2.0391	3 8 2.7	10.922	21	12 19 58.26	1.9389	5 22 13.1	10.082
22	10 47 3.48	2.0357	2 57 7.4	10.922	22	12 21 54.57	1.9382	5 32 17.1	10.049
23	10 49 5.52	2.0323	N. 2 46 12.1	-10.920	23	12 23 50.84	1.9376	S. 5 42 19.0	-10.016
MONDAY 30.					WEDNESDAY, JANUARY 1, 1902.				
0	10 51 7.36	2.0290	N. 2 35 17.0	-10.918	0	12 25 47.08	1.9370	S. 5 52 19.0	-9.983
1	10 53 9.00	2.0258	2 24 22.0	10.915	PHASES OF THE MOON.				
2	10 55 10.45	2.0225	2 13 27.2	10.911					
3	10 57 11.70	2.0193	2 2 32.7	10.906					
4	10 59 12.77	2.0163	1 51 38.5	10.901					
5	11 1 13.66	2.0133	1 40 44.6	10.895					
6	11 3 14.36	2.0103	1 29 51.1	10.888					
7	11 5 14.89	2.0073	1 18 58.1	10.879					
8	11 7 15.24	2.0044	1 8 5.6	10.871					
9	11 9 15.42	2.0017	0 57 13.6	10.862					
10	11 11 15.44	1.9990	0 46 22.2	10.852					
11	11 13 15.30	1.9963	0 35 31.4	10.842					
12	11 15 14.99	1.9936	0 24 41.2	10.830					
13	11 17 14.53	1.9911	0 13 51.8	10.818					
14	11 19 13.92	1.9886	N. 0 3 3.1	10.805					
15	11 21 13.16	1.9862	S. 0 7 44.8	10.791					
16	11 23 12.26	1.9838	0 18 31.8	10.776					
17	11 25 11.21	1.9814	0 29 17.9	10.761					
18	11 27 10.03	1.9792	0 40 3.1	10.746					
19	11 29 8.71	1.9769	0 50 47.4	10.730					
20	11 31 7.26	1.9748	1 1 30.7	10.713					
21	11 33 5.68	1.9726	1 12 12.9	10.694					
22	11 35 3.97	1.9706	1 22 54.0	10.676					
23	11 37 2.15	1.9687	1 33 34.0	10.657					
24	11 39 0.21	1.9667	S. 1 44 12.8	-10.637					

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
1	<i>α</i> Arietis W.	106 5 56	2661	107 43 28	2681	109 20 34	2700	110 57 14	2719
	Aldebaran W.	72 58 22	2606	74 37 8	2624	76 15 30	2642	77 53 28	2660
	Pollux W.	32 7 5	2916	33 39 4	2910	35 11 11	2905	36 43 24	2902
	Spica E.	60 38 36	2599	58 59 40	2617	57 21 8	2635	55 43 1	2652
	SUN E.	106 46 42	2948	105 15 25	2968	103 44 32	2988	102 14 4	3007
2	Aldebaran W.	85 57 29	2744	87 33 11	2760	89 8 31	2775	90 43 31	2790
	Pollux W.	44 24 23	2919	45 56 18	2925	47 28 6	2932	48 59 45	2939
	Spica E.	47 38 13	2737	46 2 22	2753	44 26 53	2768	42 51 44	2783
	SUN E.	94 47 32	3098	93 19 20	3116	91 51 31	3133	90 24 2	3150
3	Aldebaran W.	98 33 41	2862	100 6 49	2875	101 39 39	2888	103 12 14	2900
	Pollux W.	56 35 28	2981	58 6 4	2990	59 36 28	2999	61 6 42	3008
	Spica E.	35 0 48	2855	33 27 31	2868	31 54 31	2880	30 21 47	2893
	SUN E.	83 11 27	3228	81 45 51	3242	80 20 31	3256	78 55 28	3269
4	Aldebaran W.	110 51 23	2955	112 22 31	2965	113 53 27	2975	115 24 11	2984
	Pollux W.	68 35 12	3050	70 4 23	3058	71 33 24	3065	73 2 16	3072
	Regulus W.	31 34 34	3020	33 4 22	3024	34 34 5	3028	36 3 43	3033
	SUN E.	71 53 57	3330	70 30 20	3341	69 6 56	3351	67 43 43	3361
5	Pollux W.	80 24 29	3105	81 52 32	3111	83 20 27	3117	84 48 16	3122
	Regulus W.	43 30 26	3056	44 59 29	3061	46 28 26	3065	47 57 19	3069
	SUN E.	60 50 23	3405	59 28 11	3413	58 6 9	3419	56 44 14	3425
6	Pollux W.	92 5 51	3145	93 33 6	3149	95 0 16	3153	96 27 22	3156
	Regulus W.	55 20 34	3085	56 49 1	3088	58 17 25	3090	59 45 47	3092
	SUN E.	49 56 22	3453	48 35 5	3458	47 13 54	3462	45 52 47	3465
7	Pollux W.	103 41 56	3170	105 8 41	3172	106 35 24	3174	108 2 4	3176
	Regulus W.	67 7 3	3099	68 35 14	3100	70 3 24	3100	71 31 34	3100
	SUN E.	39 8 6	3479	37 47 18	3481	36 26 34	3483	35 5 51	3485
8	Regulus W.	78 52 31	3096	80 20 45	3095	81 49 0	3094	83 17 17	3092
	SUN E.	28 22 44	3492	27 2 11	3495	25 41 39	3496	24 21 10	3498
12	SUN W.	15 45 1	3410	17 7 6	3397	18 29 25	3383	19 52 1	3369
	Fomalhaut E.	61 39 13	3587	60 20 24	3601	59 1 51	3616	57 43 34	3632
	<i>α</i> Pegasi E.	76 29 26	3128	75 1 50	3124	73 34 9	3120	72 6 24	3117
	<i>α</i> Arietis E.	119 51 13	3034	118 21 43	3026	116 52 3	3018	115 22 13	3011
13	SUN W.	26 48 42	3313	28 12 39	3303	29 36 48	3293	31 1 8	3283
	Fomalhaut E.	51 17 20	3750	50 1 26	3782	48 46 5	3818	47 31 21	3857
	<i>α</i> Pegasi E.	64 46 51	3106	63 18 48	3105	61 50 44	3104	60 22 39	3103
	<i>α</i> Arietis E.	107 50 39	2973	106 19 52	2965	104 48 55	2957	103 17 48	2948
14	SUN W.	38 5 34	3236	39 31 1	3226	40 56 39	3216	42 22 29	3207
	Fomalhaut E.	41 29 27	4138	40 20 2	4218	39 11 53	4306	38 5 6	4405
	<i>α</i> Pegasi E.	53 2 15	3109	51 34 16	3112	50 6 20	3116	48 38 30	3122
	<i>α</i> Arietis E.	95 39 37	2908	94 7 28	2899	92 35 8	2891	91 2 38	2883
15	SUN W.	49 34 35	3156	51 1 37	3145	52 28 52	3134	53 56 21	3123

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
1	<i>α</i> Arietis	W.	112 33 29	2738	114 9 18	2757	115 44 41	2775	117 19 40	2793
	Aldebaran	W.	79 31 2	2677	81 8 13	2695	82 45 0	2711	84 21 25	2727
	Pollux	W.	38 15 40	2902	39 47 56	2904	41 20 10	2908	42 52 20	2913
	Spica	E.	54 5 17	2670	52 27 57	2687	50 51 0	2704	49 14 25	2721
	SUN	E.	100 43 59	3026	99 14 18	3045	97 45 1	3063	96 16 6	3080
2	Aldebaran	W.	92 18 11	2805	93 52 32	2820	95 26 33	2834	97 0 16	2848
	Pollux	W.	50 31 15	2947	52 2 34	2956	53 33 41	2964	55 4 39	2972
	Spica	E.	41 16 54	2798	39 42 24	2813	38 8 14	2828	36 34 22	2842
	SUN	E.	88 56 53	3166	87 30 3	3182	86 3 33	3198	84 37 21	3213
3	Aldebaran	W.	104 44 33	2912	106 16 37	2924	107 48 26	2935	109 20 1	2945
	Pollux	W.	62 36 46	3016	64 6 38	3025	65 36 19	3033	67 5 51	3042
	Spica	E.	28 49 19	2905	27 17 6	2916	25 45 8	2927	24 13 23	2938
	SUN	E.	77 30 40	3282	76 6 8	3295	74 41 51	3307	73 17 47	3319
4	Aldebaran	W.	116 54 43	2993	118 25 4	3001	119 55 15	3009	121 25 16	3017
	Pollux	W.	74 31 0	3079	75 59 35	3086	77 28 0	3093	78 56 18	3099
	Regulus	W.	37 33 16	3038	39 2 42	3043	40 32 2	3047	42 1 17	3052
	SUN	E.	66 20 42	3371	64 57 52	3380	63 35 13	3389	62 12 43	3397
5	Pollux	W.	86 15 59	3127	87 43 35	3132	89 11 6	3137	90 38 31	3141
	Regulus	W.	49 26 7	3073	50 54 50	3076	52 23 28	3079	53 52 3	3082
	SUN	E.	55 22 26	3432	54 0 46	3438	52 39 12	3443	51 17 44	3448
6	Pollux	W.	97 54 24	3159	99 21 22	3162	100 48 16	3165	102 15 7	3167
	Regulus	W.	61 14 6	3094	62 42 22	3096	64 10 37	3097	65 38 51	3098
	SUN	E.	44 31 43	3468	43 10 44	3471	41 49 48	3474	40 28 56	3477
7	Pollux	W.	109 28 41	3178	110 55 16	3180	112 21 49	3182	113 48 19	3184
	Regulus	W.	72 59 45	3100	74 27 55	3099	75 56 6	3098	77 24 18	3097
	SUN	E.	33 45 10	3487	32 24 31	3488	31 3 54	3489	29 43 18	3491
8	Regulus	W.	84 45 36	3090	86 13 57	3088	87 42 21	3086	89 10 48	3084
	SUN	E.	23 0 43	3501	21 40 20	3505	20 20 2	3508	18 59 47	3511
12	SUN	W.	21 14 54	3356	22 38 3	3344	24 1 24	3333	25 24 57	3323
	Fomalhaut	E.	56 25 34	3651	55 7 55	3672	53 50 38	3695	52 33 45	3721
	<i>α</i> Pegasi	E.	70 38 36	3114	69 10 44	3112	67 42 49	3110	66 14 51	3108
	<i>α</i> Arietis	E.	113 52 14	3003	112 22 5	2995	110 51 46	2987	109 21 17	2980
13	SUN	W.	32 25 39	3274	33 50 21	3265	35 15 14	3255	36 40 18	3245
	Fomalhaut	E.	46 17 18	3902	45 4 0	3951	43 51 32	4007	42 39 59	4069
	<i>α</i> Pegasi	E.	58 54 33	3103	57 26 27	3104	55 58 21	3105	54 30 17	3107
	<i>α</i> Arietis	E.	101 46 30	2940	100 15 2	2932	98 43 24	2924	97 11 36	2916
14	SUN	W.	43 48 30	3197	45 14 43	3187	46 41 8	3177	48 7 45	3166
	Fomalhaut	E.	36 59 49	4518	35 56 13	4649	34 54 30	4796	33 54 52	4962
	<i>α</i> Pegasi	E.	47 10 47	3129	45 43 13	3138	44 15 49	3148	42 48 37	3160
	<i>α</i> Arietis	E.	89 29 58	2874	87 57 6	2866	86 24 4	2857	84 50 50	2848
15	SUN	W.	55 24 3	3112	56 51 58	3101	58 20 7	3089	59 48 30	3077

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
15	MARS	W.	26 35 49	3159	28 2 47	3140	29 30 9	3122	30 57 52	3105
	JUPITER	W.	25 9 21	2942	26 40 47	2925	28 12 35	2908	29 44 44	2892
	α Pegasi	E.	41 21 39	3175	39 54 59	3193	38 28 41	3213	37 2 47	3237
	α Arietis	E.	83 17 25	2839	81 43 48	2830	80 10 0	2821	78 36 0	2812
	Aldebaran	E.	116 30 38	2788	114 55 55	2779	113 21 0	2769	111 45 52	2759
16	SUN	W.	61 17 8	3065	62 46 1	3053	64 15 8	3040	65 44 31	3028
	MARS	W.	38 21 36	3024	39 51 19	3009	41 21 20	2994	42 51 40	2979
	JUPITER	W.	37 30 28	2817	39 4 33	2803	40 38 57	2789	42 13 39	2775
	α Arietis	E.	70 42 57	2765	69 7 43	2755	67 32 16	2745	65 56 36	2736
	Aldebaran	E.	103 46 48	2706	102 10 16	2695	100 33 29	2684	98 56 27	2672
17	SUN	W.	73 15 23	2962	74 46 23	2949	76 17 40	2935	77 49 15	2920
	MARS	W.	50 27 58	2905	52 0 10	2891	53 32 40	2876	55 5 29	2861
	JUPITER	W.	50 11 41	2706	51 48 12	2692	53 25 2	2678	55 2 11	2664
	α Arietis	E.	57 55 6	2687	56 18 9	2678	54 41 0	2669	53 3 39	2660
	Aldebaran	E.	90 47 19	2612	89 8 40	2599	87 29 43	2586	85 50 29	2573
18	SUN	W.	85 31 43	2848	87 5 9	2833	88 38 53	2818	90 12 57	2803
	JUPITER	W.	63 12 44	2593	64 51 50	2579	66 31 14	2564	68 10 59	2549
	MARS	W.	62 54 28	2785	64 29 15	2770	66 4 22	2755	67 39 49	2739
	α Arietis	E.	44 54 0	2621	43 15 34	2615	41 36 59	2610	39 58 17	2607
	Aldebaran	E.	77 29 47	2506	75 48 43	2492	74 7 19	2479	72 25 36	2465
	Pollux	E.	119 36 6	2615	117 57 31	2597	116 18 32	2580	114 39 10	2563
19	SUN	W.	98 8 17	2727	99 44 21	2711	101 20 46	2696	102 57 31	2681
	JUPITER	W.	76 34 52	2475	78 16 40	2460	79 58 49	2445	81 41 19	2431
	MARS	W.	75 42 12	2662	77 19 43	2647	78 57 34	2632	80 35 46	2616
	Fomalhaut	W.	40 6 11	3687	41 23 12	3585	42 42 3	3492	44 2 36	3408
	Aldebaran	E.	63 52 5	2395	62 8 23	2381	60 24 21	2367	58 39 59	2353
	Pollux	E.	106 16 33	2482	104 34 54	2466	102 52 52	2450	101 10 28	2435
20	SUN	W.	111 6 18	2607	112 45 4	2593	114 24 9	2578	116 3 34	2564
	JUPITER	W.	90 18 57	2359	92 3 30	2346	93 48 23	2332	95 33 36	2319
	MARS	W.	88 51 56	2542	90 32 11	2527	92 12 46	2513	93 53 41	2499
	VENUS	W.	64 52 26	2592	66 31 32	2576	68 11 0	2560	69 50 50	2544
	Fomalhaut	W.	51 7 0	3079	52 35 35	3029	54 5 14	2981	55 35 51	2937
	α Pegasi	W.	31 32 7	2887	33 4 42	2819	34 38 45	2757	36 14 9	2701
	Aldebaran	E.	49 53 7	2285	48 6 46	2272	46 20 5	2260	44 33 6	2247
	Pollux	E.	92 33 9	2362	90 48 39	2348	89 3 49	2334	87 18 39	2321
21	JUPITER	W.	104 24 25	2256	106 11 30	2245	107 58 51	2234	109 46 29	2223
	MARS	W.	102 23 0	2434	104 5 46	2422	105 48 49	2411	107 32 8	2400
	VENUS	W.	78 15 18	2471	79 57 12	2457	81 39 26	2444	83 21 58	2432
	Fomalhaut	W.	63 21 48	2756	64 57 13	2727	66 33 16	2700	68 9 56	2675
	α Pegasi	W.	44 27 29	2496	46 8 48	2465	47 50 50	2436	49 33 33	2410
	Pollux	E.	78 28 16	2262	76 41 21	2252	74 54 10	2242	73 6 45	2233
	Regulus	E.	115 4 47	2193	113 16 9	2181	111 27 13	2169	109 37 59	2157
22	VENUS	W.	91 58 50	2377	93 42 58	2368	95 27 20	2359	97 11 54	2351
	Fomalhaut	W.	76 20 52	2577	78 0 19	2562	79 40 7	2548	81 20 14	2536
	α Pegasi	W.	58 15 39	2307	60 1 29	2290	61 47 43	2275	63 34 19	2261

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
15	MARS W.	32 25 56	3087	33 54 21	3071	35 23 6	3055	36 52 11	3039
	JUPITER W.	31 17 13	2876	32 50 3	2861	34 23 13	2846	35 56 41	2832
	α Pegasi E.	35 37 22	3267	34 12 32	3302	32 48 23	3344	31 25 2	3391
	α Arietis E.	77 1 48	2803	75 27 24	2793	73 52 47	2784	72 17 58	2775
	Aldebaran E.	110 10 31	2749	108 34 56	2739	106 59 8	2728	105 23 5	2717
16	SUN W.	67 14 9	3015	68 44 3	3002	70 14 13	2989	71 44 40	2976
	MARS W.	44 22 19	2965	45 53 16	2950	47 24 31	2935	48 56 5	2920
	JUPITER W.	43 48 39	2762	45 23 57	2748	46 59 33	2734	48 35 28	2720
	α Arietis E.	64 20 44	2726	62 44 39	2716	61 8 21	2707	59 31 50	2697
	Aldebaran E.	97 19 9	2660	95 41 36	2648	94 3 47	2636	92 25 41	2624
17	SUN W.	79 21 8	2906	80 53 19	2892	82 25 48	2877	83 58 36	2862
	MARS W.	56 38 38	2846	58 12 6	2831	59 45 53	2816	61 20 0	2800
	JUPITER W.	56 39 39	2650	58 17 26	2636	59 55 32	2621	61 33 58	2607
	α Arietis E.	51 26 6	2652	49 48 21	2643	48 10 24	2635	46 32 17	2628
	Aldebaran E.	84 10 57	2560	82 31 7	2547	80 50 59	2533	79 10 32	2520
18	SUN W.	91 47 22	2788	93 22 6	2773	94 57 9	2757	96 32 33	2742
	JUPITER W.	69 51 5	2534	71 31 31	2519	73 12 17	2504	74 53 24	2489
	MARS W.	69 15 37	2724	70 51 45	2709	72 28 13	2693	74 5 2	2678
	α Arietis E.	38 19 31	2605	36 40 42	2604	35 1 52	2605	33 23 3	2607
	Aldebaran E.	70 43 33	2451	69 1 11	2437	67 18 29	2423	65 35 27	2409
	Pollux E.	112 59 24	2546	111 19 15	2530	109 38 44	2514	107 57 50	2498
19	SUN W.	104 34 36	2666	106 12 1	2651	107 49 47	2636	109 27 52	2621
	JUPITER W.	83 24 9	2417	85 7 20	2402	86 50 52	2388	88 34 44	2373
	MARS W.	82 14 19	2601	83 53 12	2586	85 32 26	2571	87 12 1	2556
	Fomalhaut W.	45 24 44	3331	46 48 20	3260	48 13 18	3195	49 39 33	3135
	Aldebaran E.	56 55 16	2339	55 10 13	2326	53 24 51	2312	51 39 9	2298
	Pollux E.	99 27 43	2420	97 44 36	2405	96 1 8	2390	94 17 19	2376
20	SUN W.	117 43 18	2551	119 23 20	2538	121 3 41	2524	122 44 21	2511
	JUPITER W.	97 19 8	2306	99 5 0	2293	100 51 10	2281	102 37 38	2268
	MARS W.	95 34 55	2485	97 16 29	2472	98 58 21	2459	100 40 32	2447
	VENUS W.	71 31 2	2529	73 11 35	2514	74 52 29	2499	76 33 43	2485
	Fomalhaut W.	57 7 23	2896	58 39 47	2857	60 13 2	2821	61 47 3	2787
	α Pegasi W.	37 50 47	2652	39 28 32	2607	41 7 17	2567	42 46 57	2530
	Aldebaran E.	42 45 48	2235	40 58 12	2223	39 10 19	2212	37 22 9	2201
	Pollux E.	85 33 10	2309	83 47 23	2296	82 1 18	2284	80 14 55	2273
21	JUPITER W.	111 34 23	2212	113 22 32	2202	115 10 56	2193	116 59 34	2185
	MARS W.	109 15 43	2390	110 59 32	2379	112 43 37	2370	114 27 56	2362
	VENUS W.	85 4 47	2420	86 47 54	2408	88 31 17	2397	90 14 56	2387
	Fomalhaut W.	69 47 9	2652	71 24 53	2631	73 3 6	2611	74 41 47	2593
	α Pegasi W.	51 16 53	2386	53 0 48	2363	54 45 16	2342	56 30 14	2324
	Pollux E.	71 19 6	2225	69 31 15	2217	67 43 12	2210	65 54 59	2204
	Regulus E.	107 48 27	2146	105 58 38	2136	104 8 34	2126	102 18 14	2116
22	VENUS W.	98 56 40	2343	100 41 37	2336	102 26 44	2330	104 12 0	2325
	Fomalhaut W.	83 0 37	2526	84 41 14	2517	86 22 4	2510	88 3 3	2504
	α Pegasi W.	65 21 16	2249	67 8 30	2238	68 56 1	2228	70 43 47	2219

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
		° ' "		° ' "		° ' "		° ' "	
22	Pollux E.	64 6 38	2199	62 18 8	2195	60 29 31	2192	58 40 50	2189
	Regulus E.	100 27 40	2107	98 36 52	2099	96 45 52	2092	94 54 40	2085
23	VENUS W.	105 57 23	2321	107 42 53	2317	109 28 28	2314	111 14 8	2312
	Fomalhaut W.	89 44 11	2500	91 25 25	2497	93 6 42	2496	94 48 1	2497
	α Pegasi W.	72 31 46	2212	74 19 56	2206	76 8 15	2201	77 56 43	2196
	α Arietis W.	28 57 44	2282	30 44 10	2255	32 31 16	2231	34 18 57	2210
	Pollux E.	49 37 7	2196	47 48 34	2202	46 0 10	2210	44 11 58	2221
	Regulus E.	85 36 10	2058	83 44 6	2055	81 51 56	2053	79 59 43	2051
24	Fomalhaut W.	103 13 38	2524	104 54 18	2535	106 34 42	2548	108 14 49	2563
	α Pegasi W.	87 0 6	2190	88 48 48	2192	90 37 27	2195	92 26 2	2199
	α Arietis W.	43 23 30	2152	45 13 10	2147	47 2 58	2143	48 52 52	2140
	Regulus E.	70 38 19	2053	68 46 6	2056	66 53 58	2059	65 1 55	2063
	Spica E.	124 22 48	2031	122 30 2	2033	120 37 19	2036	118 44 41	2040
25	α Pegasi W.	101 26 53	2237	103 14 27	2247	105 1 45	2258	106 48 46	2270
	α Arietis W.	58 2 36	2148	59 52 21	2153	61 41 59	2159	63 31 28	2166
	Aldebaran W.	24 24 42	2105	26 15 34	2110	28 6 18	2115	29 56 55	2121
	Regulus E.	55 43 48	2097	53 52 44	2107	52 1 55	2117	50 11 21	2123
	Spica E.	109 23 16	2068	107 31 28	2076	105 39 53	2085	103 48 30	2094
26	α Arietis W.	72 35 52	2213	74 24 0	2225	76 11 50	2237	77 59 22	2250
	Aldebaran W.	39 7 12	2167	40 56 30	2178	42 45 31	2190	44 34 14	2202
	Regulus E.	41 3 8	2196	39 14 34	2212	37 26 25	2230	35 38 42	2249
	Spica E.	94 35 29	2149	92 45 45	2163	90 56 21	2176	89 7 17	2189
27	α Arietis W.	86 51 56	2324	88 37 20	2341	90 22 20	2357	92 6 56	2375
	Aldebaran W.	53 32 42	2276	55 19 17	2292	57 5 28	2308	58 51 16	2325
	Spica E.	80 7 21	2266	78 20 31	2282	76 34 5	2299	74 48 3	2316
	Antares E.	125 23 34	2309	123 37 47	2325	121 52 24	2341	120 7 25	2357
28	α Arietis W.	100 43 34	2166	102 25 35	2485	104 7 9	2504	105 48 16	2524
	Aldebaran W.	67 34 2	2412	69 17 19	2431	71 0 10	2449	72 42 35	2467
	Spica E.	66 4 16	2405	64 20 49	2423	62 37 47	2441	60 55 11	2460
	Antares E.	111 28 13	2440	109 45 35	2458	108 3 23	2475	106 21 35	2493
29	Aldebaran W.	81 8 12	2560	82 48 2	2579	84 27 26	2597	86 6 26	2615
	Pollux W.	39 44 2	2766	41 19 14	2772	42 54 18	2779	44 29 14	2786
	Spica E.	52 28 47	2553	50 48 48	2572	49 9 14	2590	47 30 5	2609
	Antares E.	97 58 55	2585	96 19 39	2603	94 40 48	2621	93 2 21	2639
	SUN E.	126 59 9	2916	125 27 10	2935	123 55 36	2955	122 24 27	2975
30	Aldebaran W.	94 15 16	2704	95 51 50	2722	97 28 1	2739	99 3 49	2755
	Pollux W.	52 21 3	2836	53 54 43	2848	55 28 8	2860	57 1 18	2872
	Antares E.	84 56 17	2729	83 20 16	2746	81 44 37	2763	80 9 21	2780
	SUN E.	114 54 43	3069	113 25 56	3088	111 57 32	3106	110 29 30	3124
31	Aldebaran W.	106 57 31	2834	108 31 15	2849	110 4 39	2864	111 37 44	2878
	Pollux W.	64 43 14	2933	66 14 50	2945	67 46 10	2957	69 17 16	2969
	Antares E.	72 18 28	2862	70 45 20	2877	69 12 32	2892	67 40 3	2906
	SUN E.	103 14 37	3209	101 48 39	3225	100 23 0	3240	98 57 39	3255

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
22	Pollux	E.	56 52 5	2187	55 3 18	2188	53 14 32	2190	51 25 47	2192
	Regulus	E.	93 3 16	2078	91 11 42	2072	89 19 59	2067	87 28 8	2062
23	VENUS	W.	112 59 50	2311	114 45 34	2309	116 31 20	2310	118 17 5	2311
	Fomalhaut	W.	96 29 19	2499	98 10 34	2503	99 51 44	2508	101 32 46	2515
	α Pegasi	W.	79 45 17	2192	81 33 56	2190	83 22 38	2189	85 11 22	2189
	α Arietis	W.	36 7 9	2193	37 55 47	2180	39 44 45	2169	41 34 0	2159
	Pollux	E.	42 24 2	2235	40 36 26	2250	38 49 13	2269	37 2 28	2291
	Regulus	E.	78 7 27	2050	76 15 10	2049	74 22 52	2050	72 30 35	2051
24	Fomalhaut	W.	109 54 35	2580	111 33 57	2599	113 12 54	2620	114 51 22	2643
	α Pegasi	W.	94 14 31	2204	96 2 52	2210	97 51 4	2218	99 39 5	2227
	α Arietis	W.	50 42 51	2139	52 32 50	2140	54 22 48	2141	56 12 44	2144
	Regulus	E.	63 9 59	2069	61 18 11	2075	59 26 33	2081	57 35 5	2088
	Spica	E.	116 52 8	2045	114 59 42	2050	113 7 25	2055	111 15 16	2061
25	α Pegasi	W.	108 35 29	2284	110 21 52	2300	112 7 52	2316	113 53 29	2333
	α Arietis	W.	65 20 47	2174	67 9 54	2183	68 58 47	2192	70 47 27	2202
	Aldebaran	W.	31 47 23	2128	33 37 40	2136	35 27 45	2145	37 17 36	2156
	Regulus	E.	48 21 4	2140	46 31 5	2153	44 41 25	2166	42 52 6	2180
	Spica	E.	101 57 21	2104	100 6 28	2115	98 15 52	2126	96 25 32	2137
26	α Arietis	W.	79 46 36	2264	81 33 28	2279	83 19 59	2293	85 6 9	2308
	Aldebaran	W.	46 22 38	2216	48 10 41	2230	49 58 23	2245	51 45 44	2260
	Regulus	E.	33 51 27	2270	32 4 42	2292	30 18 30	2315	28 32 52	2339
	Spica	E.	87 18 33	2204	85 30 11	2219	83 42 12	2234	81 54 35	2250
27	α Arietis	W.	93 51 7	2393	95 34 52	2411	97 18 12	2429	99 1 6	2447
	Aldebaran	W.	60 36 40	2342	62 21 38	2359	64 6 11	2377	65 50 19	2394
	Spica	E.	73 2 27	2333	71 17 16	2350	69 32 30	2368	67 48 10	2387
	Antares	E.	118 22 49	2373	116 38 35	2389	114 54 44	2405	113 11 16	2422
28	α Arietis	W.	107 28 56	2544	109 9 7	2564	110 48 51	2584	112 28 7	2604
	Aldebaran	W.	74 24 35	2486	76 6 9	2505	77 47 15	2523	79 27 56	2541
	Spica	E.	59 13 2	2479	57 31 19	2498	55 50 3	2516	54 9 12	2535
	Antares	E.	104 40 12	2512	102 59 15	2530	101 18 43	2548	99 38 36	2566
29	Aldebaran	W.	87 45 1	2633	89 23 12	2651	91 0 57	2669	92 38 18	2687
	Pollux	W.	46 4 1	2795	47 38 36	2805	49 12 58	2815	50 47 7	2825
	Spica	E.	45 51 22	2627	44 13 4	2645	42 35 10	2663	40 57 40	2681
	Antares	E.	91 24 19	2657	89 46 42	2676	88 9 30	2694	86 32 42	2711
	SUN	E.	120 53 43	2994	119 23 23	3013	117 53 26	3032	116 23 53	3051
30	Aldebaran	W.	100 39 16	2772	102 14 21	2788	103 49 5	2804	105 23 28	2819
	Pollux	W.	58 34 13	2885	60 6 51	2897	61 39 14	2909	63 11 22	2921
	Antares	E.	78 34 27	2797	76 59 56	2814	75 25 46	2830	73 51 57	2846
	SUN	E.	109 1 49	3142	107 34 30	3159	106 7 32	3176	104 40 55	3193
31	Aldebaran	W.	113 10 31	2891	114 43 1	2904	116 15 15	2918	117 47 11	2931
	Pollux	W.	70 48 7	2981	72 18 44	2993	73 49 6	3004	75 19 14	3016
	Antares	E.	66 7 52	2921	64 36 0	2935	63 4 26	2949	61 33 9	2962
	SUN	E.	97 32 35	3270	96 7 49	3285	94 43 21	3300	93 19 9	3311

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"			h m s	s	° ' "	"	
1	17 53 10.47	+16.699	24 3 35.1	-19.07	23 14.1	1	21 29 53.58	+17.370	16 44 50.8	+93.34	0 46.0
2	17 59 52.42	16.796	24 10 35.9	15.99	23 16.9	2	21 36 49.26	17.266	16 6 48.5	96.83	0 49.0
3	18 6 36.66	16.889	24 16 22.0	12.84	23 19.7	3	21 43 42.21	17.142	15 27 24.0	100.17	0 51.9
4	18 13 23.06	16.977	24 20 51.8	9.62	23 22.6	4	21 50 31.93	16.996	14 46 40.9	103.38	0 54.8
5	18 20 11.50	17.059	24 24 4.0	6.37	23 25.5	5	21 57 17.84	16.824	14 4 43.2	106.38	0 57.6
6	18 27 1.87	+17.137	24 25 57.3	-3.06	23 28.4	6	22 3 59.25	+16.621	13 21 36.5	+109.14	1 0.4
7	18 33 54.06	17.211	24 26 30.6	+0.32	23 31.4	7	22 10 35.39	16.384	12 37 27.0	111.60	1 3.1
8	18 40 47.94	17.279	24 25 42.5	3.71	23 34.4	8	22 17 5.34	16.105	11 52 22.3	113.73	1 5.6
9	18 47 43.42	17.343	24 23 32.0	7.17	23 37.4	9	22 23 28.06	15.780	11 6 31.1	115.46	1 8.0
10	18 54 40.38	17.403	24 19 58.1	10.67	23 40.4	10	22 29 42.37	15.403	10 20 3.7	116.73	1 10.3
11	19 1 38.72	+17.458	24 14 59.6	+14.21	23 43.5	11	22 35 46.94	+14.967	9 33 12.1	+117.47	1 12.5
12	19 8 38.32	17.508	24 8 35.6	17.79	23 46.5	12	22 41 40.28	14.466	8 46 9.8	117.61	1 14.4
13	19 15 39.08	17.554	24 0 45.2	21.41	23 49.6	13	22 47 20.72	13.892	7 59 12.3	117.06	1 16.1
14	19 22 40.89	17.596	23 51 27.5	25.07	23 52.7	14	22 52 46.46	13.240	7 12 36.7	115.77	1 17.6
15	19 29 43.65	17.633	23 40 41.6	28.76	23 55.9	15	22 57 55.55	12.593	6 26 41.7	113.67	1 18.8
16	19 36 47.25	+17.665	23 28 26.7	+32.49	23 59.0	16	23 2 45.92	+11.679	5 41 47.7	+110.68	1 19.7
17	19 43 51.56	17.693	23 14 42.1	36.24		17	23 7 15.41	10.763	4 58 16.6	106.75	1 20.2
18	19 50 56.47	17.716	22 59 27.1	40.02	0 2.1	18	23 11 21.83	9.756	4 16 31.4	101.85	1 20.3
19	19 58 1.88	17.734	22 42 41.1	43.82	0 5.3	19	23 15 2.97	8.658	3 36 55.8	95.95	1 20.0
20	20 5 7.67	17.747	22 24 23.5	47.65	0 8.5	20	23 18 16.71	7.473	2 59 53.9	89.05	1 19.3
21	20 12 13.71	+17.755	22 4 33.9	+51.49	0 11.6	21	23 21 1.05	+6.209	2 25 49.5	+81.15	1 18.1
22	20 19 19.88	17.758	21 43 11.8	55.35	0 14.8	22	23 23 14.22	4.877	1 55 6.0	72.32	1 16.4
23	20 26 26.05	17.755	21 20 16.9	59.22	0 18.0	23	23 24 54.72	3.490	1 28 5.4	62.59	1 14.1
24	20 33 32.08	17.746	20 55 49.0	63.10	0 21.1	24	23 26 1.43	2.065	1 5 8.0	52.06	1 11.2
25	20 40 37.81	17.730	20 29 48.1	66.97	0 24.3	25	23 26 33.73	+0.624	0 46 31.7	40.86	1 7.8
26	20 47 43.09	+17.708	20 2 14.3	+70.84	0 27.4	26	23 26 31.44	-0.811	0 32 31.2	+29.11	1 3.8
27	20 54 47.73	17.677	19 33 7.8	74.70	0 30.6	27	23 25 55.08	2.211	0 23 17.5	16.99	0 59.2
28	21 1 51.54	17.638	19 2 29.0	78.53	0 33.7	28	23 24 45.78	3.550	0 18 57.0	+4.73	0 54.1
29	21 8 54.29	17.590	18 30 18.8	82.32	0 36.8	29	23 23 5.39	4.798	0 19 30.9	-7.50	0 48.5
30	21 15 55.75	17.530	17 56 38.0	86.07	0 39.9	30	23 20 56.46	5.924	0 24 54.7	19.41	0 42.4
31	21 22 55.62	+17.457	17 21 28.1	+89.75	0 43.0	31	23 18 22.25	-6.900	0 34 57.8	-30.73	0 35.9
32	21 29 53.58	+17.370	16 44 50.8	+93.34	0 46.0	32	23 15 26.63	-7.704	0 49 23.0	-41.21	0 29.1
Day of the Month.						Day of the Month.					
1st.						5th.					
6th.						10th.					
11th.						15th.					
16th.						20th.					
21st.						25th.					
26th.											
31st.											
Semidiameter .						Semidiameter .					
Hor.Parallax .						Hor. Parallax .					
2.42						2.62					
6.39						6.89					
2.37						2.83					
6.25						7.45					
2.34						3.15					
6.18						3.63					
2.34						9.56					
6.16						11.19					
2.36											
6.21											
2.40											
6.33											
2.48											
6.54											

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

MARCH.						APRIL.								
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.			
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.				
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m			
1	23 23 5.39	-4.798	0 19 30.9	-7.50	0 48.5	1	23 1 16.63	+8.546	-7 46 8.7	+28.13	22 24.3			
2	23 20 56.46	5.924	0 24 54.7	19.41	0 42.4	2	23 4 47.10	8.989	7 33 58.9	32.67	22 24.0			
3	23 18 22.25	6.900	0 34 57.8	30.73	0 35.9	3	23 8 27.86	9.404	7 20 1.7	37.07	22 23.9			
4	23 15 26.63	7.704	0 49 23.0	41.21	0 29.1	4	23 12 18.27	9.793	7 4 20.4	41.34	22 23.9			
5	23 12 14.01	8.314	1 7 47.1	50.60	0 22.0	5	23 16 17.76	10.161	6 46 58.3	45.48	22 24.1			
6	23 8 49.18	-8.720	-1 29 41.5	-58.69	0 14.6	6	23 20 25.83	+10.508	-6 27 58.4	+49.49	22 24.4			
7	23 5 17.13	8.915	1 54 32.8	65.32	$\left\{ \begin{smallmatrix} 0 & 7.2 \\ 23 & 59.7 \end{smallmatrix} \right.$	7	23 24 42.00	10.837	6 7 23.6	53.39	22 24.9			
8	23 1 42.89	8.903	2 21 44.3	70.37	23 52.3	8	23 29 5.86	11.149	5 45 16.6	57.17	22 25.4			
9	22 58 11.36	8.693	2 50 37.9	73.82	23 45.0	9	23 33 37.05	11.447	5 21 40.2	60.85	22 26.1			
10	22 54 47.06	8.300	3 20 34.8	75.67	23 37.9	10	23 38 15.23	11.732	4 56 36.8	64.42	22 26.9			
11	22 51 34.12	-7.751	-3 50 58.1	-76.02	23 31.0	11	23 43 0.12	+12.007	-4 30 8.9	+67.89	22 27.8			
12	22 48 36.06	7.067	4 21 12.9	75.00	23 24.4	12	23 47 51.49	12.272	4 2 19.0	71.26	22 28.8			
13	22 45 55.77	6.274	4 50 48.5	72.77	23 18.1	13	23 52 49.12	12.529	3 33 9.2	74.54	22 30.0			
14	22 43 35.56	5.399	5 19 17.6	69.51	23 12.1	14	23 57 52.83	12.780	3 2 41.7	77.73	22 31.2			
15	22 41 37.09	4.466	5 46 17.7	65.39	23 6.7	15	0 3 2.52	13.026	2 30 58.7	80.84	22 32.5			
16	22 40 1.46	-3.499	-6 11 30.7	-60.60	23 1.6	16	0 8 18.07	+13.269	-1 58 2.3	+83.85	22 33.9			
17	22 38 49.26	2.517	6 34 42.4	55.31	22 56.8	17	0 13 39.41	13.509	1 23 54.5	86.79	22 35.4			
18	22 38 0.63	1.537	6 55 42.7	49.66	22 52.4	18	0 19 6.50	13.748	0 48 37.3	89.63	22 37.0			
19	22 37 35.37	-0.572	7 14 24.3	43.78	22 48.4	19	0 24 39.33	13.988	-0 12 12.9	92.39	22 38.7			
20	22 37 32.99	+0.368	7 30 42.9	37.76	22 44.8	20	0 30 17.94	14.229	+0 25 16.8	95.07	22 40.5			
21	22 37 52.79	+1.276	-7 44 36.3	-31.69	22 41.5	21	0 36 2.36	+14.473	+1 3 49.8	+97.66	22 42.4			
22	22 38 33.92	2.145	7 56 4.1	25.64	22 38.6	22	0 41 52.68	14.721	1 43 24.0	100.17	22 44.4			
23	22 39 35.40	2.972	8 5 7.4	19.64	22 36.0	23	0 47 49.00	14.974	2 23 57.1	102.58	22 46.4			
24	22 40 56.22	3.756	8 11 47.8	13.75	22 33.7	24	0 53 51.45	15.232	3 5 27.1	104.90	22 48.7			
25	22 42 35.32	4.496	8 16 8.3	7.98	22 31.7	25	1 0 0.18	15.497	3 47 51.5	107.12	22 51.0			
26	22 44 31.66	+5.192	-8 18 12.0	-2.36	22 30.0	26	1 6 15.39	+15.772	+4 31 8.0	+109.23	22 53.4			
27	22 46 44.21	5.846	8 18 2.6	+3.12	22 28.4	27	1 12 37.26	16.053	5 15 13.6	111.22	22 55.9			
28	22 49 11.96	6.459	8 15 43.6	8.44	22 27.2	28	1 19 6.01	16.344	6 0 5.6	113.09	22 58.6			
29	22 51 53.95	7.034	8 11 18.9	13.59	22 26.2	29	1 25 41.86	16.645	6 45 40.8	114.82	23 1.4			
30	22 54 49.29	7.571	8 4 52.4	18.59	22 25.3	30	1 32 25.07	16.957	7 31 55.7	116.37	23 4.3			
31	22 57 57.11	+8.075	-7 56 27.8	+23.44	22 24.7	31	1 39 15.88	+17.279	+8 18 46.4	+117.80	23 7.3			
32	23 1 16.63	+8.546	-7 46 8.7	+28.13	22 24.3	32	1 46 14.53	+17.611	+9 6 8.5	+119.01	23 10.5			
Day of the Month.						Day of the Month.								
2d.		7th.	12th.	17th.	22d.	27th.	1st.		6th.	11th.	16th.	21st.	26th.	
"		"	"	"	"	"	"		"	"	"	"	"	
Semidiameter . . .		4.89	5.33	5.40	5.14	4.74	Semidiameter . . .		3.97	3.65	3.38	3.15	2.96	2.80
Hor. Parallax . . .		12.89	14.05	14.22	13.55	12.50	Hor. Parallax . . .		10.46	9.63	8.91	8.31	7.80	7.37

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.							JUNE						
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.		Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	
	Noon.	Noon.	Noon.	Noon.				Noon.	Noon.	Noon.	Noon.		
	h m s	s	° ' "	"	h m			h m s	s	° ' "	"	h m	
1	1 39 15.88	+17.279	+ 8 18 46.4	+117.80	23 7.3		1	5 56 22.96	+18.874	+25 36 12.0	+ 3.19	1 19.5	
2	1 46 14.53	17.611	9 6 8.5	119.01	23 10.5		2	6 3 49.80	18.360	25 36 25.4	- 2.03	1 23.0	
3	1 53 21.27	17.953	9 53 57.3	120.02	23 13.8		3	6 11 4.09	17.829	25 34 36.9	6.97	1 26.3	
4	2 0 36.34	18.304	10 42 7.4	120.79	23 17.3		4	6 18 5.46	17.283	25 30 53.2	11.63	1 29.4	
5	2 7 59.94	18.664	11 30 32.9	121.29	23 20.8		5	6 24 53.57	16.724	25 25 21.2	16.00	1 32.2	
6	2 15 32.24	+19.029	+12 19 6.9	+121.49	23 24.6		6	6 31 28.11	+16.153	+25 18 7.6	-20.08	1 34.8	
7	2 23 13.36	19.399	13 7 42.0	121.37	23 28.5		7	6 37 48.82	15.571	25 9 19.5	23.88	1 37.2	
8	2 31 3.38	19.770	13 56 9.9	120.90	23 32.5		8	6 43 55.43	14.978	24 59 3.6	27.40	1 39.4	
9	2 39 2.29	20.139	14 44 22.1	120.04	23 36.7		9	6 49 47.70	14.376	24 47 26.7	30.62	1 41.3	
10	2 47 9.97	20.500	15 32 8.1	118.73	23 41.1		10	6 55 25.40	13.764	24 34 35.4	33.57	1 43.0	
11	2 55 26.21	+20.851	+16 19 17.5	+116.98	23 45.6		11	7 0 48.29	+13.142	+24 20 36.4	-36.28	1 44.4	
12	3 3 50.69	21.186	17 5 39.0	114.73	23 50.2		12	7 5 56.13	12.510	24 5 36.1	-38.71	1 45.6	
13	3 12 22.92	21.496	17 51 0.6	111.98	23 54.9		13	7 10 48.70	11.868	23 49 41.0	40.85	1 46.5	
14	3 21 2.29	21.779	18 35 9.9	108.71	23 59.7		14	7 15 25.72	11.215	23 32 57.4	42.74	1 47.1	
15	3 29 48.04	22.027	19 17 54.7	104.93			15	7 19 46.94	10.551	23 15 31.7	44.36	1 47.5	
16	3 38 39.26	+22.234	+19 59 2.4	+100.63	0 4.7		16	7 23 52.08	+9.875	+22 57 30.1	-45.73	1 47.6	
17	3 47 34.93	22.396	20 38 21.1	95.85	0 9.6		17	7 27 40.85	9.187	22 38 58.8	46.84	1 47.5	
18	3 56 33.87	22.507	21 15 39.4	90.61	0 14.7		18	7 31 12.95	8.486	22 20 4.0	47.68	1 47.0	
19	4 5 34.83	22.564	21 50 47.1	84.96	0 19.8		19	7 34 28.05	7.771	22 0 52.0	48.28	1 46.3	
20	4 14 36.51	22.566	22 23 35.3	78.98	0 24.9		20	7 37 25.84	7.043	21 41 28.7	48.62	1 45.3	
21	4 23 37.57	+22.512	+22 53 56.1	+72.72	0 30.0		21	7 40 5.99	+6.301	+21 22 0.4	-48.70	1 44.0	
22	4 32 36.64	22.401	23 21 44.0	66.24	0 35.1		22	7 42 28.16	5.545	21 2 33.3	48.52	1 42.5	
23	4 41 32.40	22.236	23 46 54.5	59.62	0 40.1		23	7 44 32.06	4.777	20 43 13.4	48.09	1 40.6	
24	4 50 23.58	22.020	24 9 25.1	52.93	0 45.0		24	7 46 17.37	3.997	20 24 7.0	47.40	1 38.3	
25	4 59 8.98	21.755	24 29 14.9	46.22	0 49.8		25	7 47 43.81	3.206	20 5 20.2	46.45	1 35.8	
26	5 7 47.48	+21.446	+24 46 24.3	+39.57	0 54.5		26	7 48 51.16	+2.406	+19 46 59.2	-45.25	1 33.0	
27	5 16 18.05	21.095	25 0 55.3	33.03	0 59.1		27	7 49 39.24	1.600	19 29 10.1	43.80	1 29.9	
28	5 24 39.76	20.709	25 12 50.9	26.64	1 3.5		28	7 50 7.94	+0.791	19 11 58.9	42.09	1 26.4	
29	5 32 51.80	20.289	25 22 15.2	20.43	1 7.8		29	7 50 17.24	-0.016	18 55 31.6	40.14	1 22.6	
30	5 40 53.42	19.842	25 29 13.0	14.44	1 11.9		30	7 50 7.26	0.815	18 39 54.0	37.95	1 18.4	
31	5 48 44.01	+19.369	+25 33 50.0	+8.69	1 15.8		31	7 49 38.22	-1.602	+18 25 11.9	-35.53	1 14.0	
32	5 56 22.96	+18.874	+25 36 12.0	+3.19	1 19.5		32	7 48 50.52	-2.369	+18 11 30.7	-32.88	1 9.3	
Day of the Month. 1st. 6th. 11th. 16th. 21st. 26th. 31st.							Day of the Month. 5th. 10th. 15th. 20th. 25th. 30th.						
Semidiameter . 2.67 2.57 2.52 2.53 2.62 2.77 2.99							Semidiameter . . 3.27 3.61 4.00 4.43 4.90 5.36						
Hor. Parallax . 7.03 6.78 6.65 6.68 6.89 7.30 7.89							Hor. Parallax . . 8.62 9.52 10.54 11.70 12.92 14.11						

GREENWICH MEAN TIME.

JULY.						AUGUST.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	7 49 38.22	-1.602	+18 25 11.9	-35.53	1 14.0	1	7 22 17.80	+9.077	+20 3 7.6	+21.54	22 44.0
2	7 48 50.52	2.369	18 11 30.7	32.88	1 9.3	2	7 26 8.48	10.143	20 11 9.3	18.53	22 44.9
3	7 47 44.75	3.107	17 58 55.6	30.02	1 4.2	3	7 30 24.47	11.185	20 17 53.1	15.04	22 45.6
4	7 46 21.68	3.808	17 47 31.2	26.98	0 58.9	4	7 35 5.16	12.200	20 23 7.6	11.09	22 46.7
5	7 44 42.35	4.461	17 37 22.0	23.77	0 53.3	5	7 40 9.81	13.180	20 26 41.6	6.67	22 48.2
6	7 42 48.00	-5.057	+17 28 31.7	-20.41	0 47.5	6	7 45 37.47	+14.119	+20 28 24.3	+1.81	22 50.1
7	7 40 40.15	5.585	17 21 3.4	16.93	0 41.5	7	7 51 27.11	15.010	20 28 5.1	-3.48	22 52.3
8	7 38 20.55	6.035	17 14 59.9	13.36	0 35.2	8	7 57 37.50	15.846	20 25 34.2	9.16	22 54.9
9	7 35 51.19	6.396	17 10 22.8	9.73	0 28.8	9	8 4 7.23	16.620	20 20 42.8	15.18	22 57.7
10	7 33 14.31	6.660	17 7 13.1	6.07	0 22.3	10	8 10 54.75	17.328	20 13 23.2	21.50	23 0.8
11	7 30 32.31	-6.821	+17 5 31.5	-2.42	0 15.7	11	8 17 58.37	+17.961	+20 3 29.2	-28.04	23 4.2
12	7 27 47.77	6.872	17 5 16.9	+1.18	0 9.0	12	8 25 16.24	18.515	19 50 56.3	34.73	23 7.7
13	7 25 3.37	6.809	17 6 27.8	4.70	0 2.4	13	8 32 46.43	18.987	19 35 41.5	41.50	23 11.5
14	7 22 21.85	6.631	17 9 2.1	8.12	23 49.3	14	8 40 26.94	19.375	19 17 44.3	48.26	23 15.4
15	7 19 45.98	6.339	17 12 56.5	11.38	23 42.9	15	8 48 15.75	19.679	18 57 5.7	54.93	23 19.3
16	7 17 18.45	-5.937	+17 18 7.3	+14.47	23 36.7	16	8 56 10.86	+19.900	+18 33 49.1	-61.43	23 23.4
17	7 15 1.86	5.428	17 24 29.5	17.35	23 30.7	17	9 4 10.32	20.043	18 7 59.4	67.67	23 27.5
18	7 12 58.68	4.821	17 31 58.4	20.00	23 25.0	18	9 12 12.31	20.112	17 39 43.2	73.61	23 31.6
19	7 11 11.19	4.122	17 40 27.5	22.38	23 19.6	19	9 20 15.14	20.113	17 9 8.3	79.22	23 35.7
20	7 9 41.46	3.342	17 49 50.6	24.48	23 14.5	20	9 28 17.27	20.055	16 36 23.7	84.43	23 39.8
21	7 8 31.35	-2.490	+18 0 0.5	+26.28	23 9.7	21	9 36 17.35	+19.944	+16 1 39.1	-89.22	23 43.8
22	7 7 42.45	1.575	18 10 49.8	27.76	23 5.3	22	9 44 14.24	19.790	15 25 4.7	93.58	23 47.7
23	7 7 16.15	-0.609	18 22 10.6	28.91	23 1.3	23	9 52 6.96	19.598	14 46 50.7	97.52	23 51.6
24	7 7 13.57	+0.400	18 33 54.6	29.70	22 57.7	24	9 59 54.71	19.377	14 7 7.3	101.03	23 55.4
25	7 7 35.64	1.443	18 45 53.1	30.12	22 54.6	25	10 7 36.87	19.133	13 26 4.8	104.12	23 59.1
26	7 8 23.05	+2.512	+18 57 57.1	+30.15	22 51.8	26	10 15 12.96	+18.872	+12 43 52.5	-106.84	
27	7 9 36.35	3.599	19 9 57.2	29.79	22 49.5	27	10 22 42.66	18.601	12 0 39.6	109.16	0 2.6
28	7 11 15.87	4.696	19 21 43.7	29.01	22 47.7	28	10 30 5.74	18.322	11 16 34.7	111.17	0 6.1
29	7 13 21.79	5.798	19 33 6.3	27.81	22 46.3	29	10 37 22.09	18.040	10 31 45.8	112.86	0 9.4
30	7 15 54.17	6.899	19 43 55.1	26.18	22 45.3	30	10 44 31.68	17.759	9 46 20.0	114.24	0 12.6
31	7 18 52.91	+7.994	+19 53 59.1	+24.09	22 44.7	31	10 51 34.55	+17.481	+9 0 24.6	-115.34	0 15.7
32	7 22 17.80	+9.077	+20 3 7.6	+21.54	22 44.6	32	10 58 30.79	+17.207	+8 14 5.4	-116.21	0 18.7
Day of the Month.						Day of the Month.					
5th. 10th. 15th. 20th. 25th. 30th.						4th. 9th. 14th. 19th. 24th. 29th.					
" " " " " "						" " " " " "					
Semidiameter . . . 5.71 5.86 5.71 5.30 4.73 4.13						Semidiameter . . . 3.59 3.15 2.83 2.63 2.50 2.44					
Hor. Parallax . . . 15.05 15.44 15.06 13.96 12.45 10.87						Hor. Parallax . . . 9.45 8.30 7.45 6.90 6.57 6.41					

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.							
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.		
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.			
	h m s	s	° ' "	"			h m	h m s	s	° ' "		"	h m
1	10 58 30.79	+17.207	+ 8 14 5.4	-116.21	0 18.7	1	13 50 37.25	+12.264	-13 17 45.1	-86.32	1 12.6		
2	11 5 20.53	16.940	7 27 28.3	116.85	0 21.6	2	13 55 29.89	12.121	13 51 50.8	84.14	1 13.5		
3	11 12 3.96	16.680	6 40 38.4	117.28	0 24.4	3	14 0 18.98	11.968	14 25 2.9	81.85	1 14.4		
4	11 18 41.25	16.429	5 53 40.3	117.53	0 27.1	4	14 5 4.25	11.802	14 57 19.0	79.47	1 15.2		
5	11 25 12.62	16.187	5 6 38.5	117.60	0 29.7	5	14 9 45.39	11.623	15 28 36.7	76.98	1 15.9		
6	11 31 38.30	+15.955	+ 4 19 36.8	-117.52	0 32.2	6	14 14 22.03	+11.427	-15 58 53.4	-74.38	1 16.6		
7	11 37 58.51	15.731	3 32 38.7	117.30	0 34.6	7	14 18 53.73	11.211	16 28 6.1	71.65	1 17.2		
8	11 44 13.48	15.518	2 45 47.5	116.95	0 36.9	8	14 23 19.99	10.973	16 56 11.8	68.79	1 17.7		
9	11 50 23.44	15.314	1 59 6.2	116.48	0 39.1	9	14 27 40.22	10.708	17 23 6.9	65.78	1 18.0		
10	11 56 28.61	15.119	1 12 37.4	115.90	0 41.2	10	14 31 53.76	10.415	17 48 47.9	62.61	1 18.3		
11	12 2 29.24	+14.934	+ 0 26 23.7	-115.22	0 43.3	11	14 35 59.87	+10.088	-18 13 10.7	-59.26	1 18.5		
12	12 8 25.51	14.757	- 0 19 32.5	114.45	0 45.3	12	14 39 57.66	9.721	18 36 10.6	55.71	1 18.5		
13	12 14 17.63	14.588	1 5 9.1	113.58	0 47.2	13	14 43 46.16	9.313	18 57 42.9	51.94	1 18.4		
14	12 20 5.79	14.427	1 50 24.1	112.65	0 49.1	14	14 47 24.28	8.855	19 17 42.0	47.94	1 18.0		
15	12 25 50.17	14.273	2 35 15.6	111.63	0 50.9	15	14 50 50.78	8.343	19 36 1.7	43.67	1 17.5		
16	12 31 30.94	+14.126	- 3 19 41.9	-110.54	0 52.6	16	14 54 4.27	+ 7.770	-19 52 35.3	-39.09	1 16.8		
17	12 37 8.25	13.985	4 3 41.2	109.39	0 54.3	17	14 57 3.22	7.130	20 7 15.2	34.18	1 15.8		
18	12 42 42.25	13.850	4 47 11.9	108.16	0 55.9	18	14 59 45.94	6.416	20 19 53.0	28.91	1 14.6		
19	12 48 13.07	13.720	5 30 12.3	106.87	0 57.5	19	15 2 10.57	5.622	20 30 19.3	23.21	1 13.1		
20	12 53 40.82	13.592	6 12 41.0	105.51	0 59.0	20	15 4 15.10	4.741	20 38 23.5	17.06	1 11.2		
21	12 59 5.59	+13.471	- 6 54 36.5	-104.10	1 0.5	21	15 5 57.39	+ 3.767	-20 43 54.2	-10.41	1 8.9		
22	13 4 27.47	13.352	7 35 57.2	102.62	1 1.9	22	15 7 15.17	2.698	20 46 38.6	- 3.20	1 6.3		
23	13 9 46.52	13.236	8 16 41.7	101.08	1 3.3	23	15 8 6.13	1.532	20 46 23.0	+ 4.60	1 3.1		
24	13 15 2.76	13.119	8 56 48.4	99.47	1 4.6	24	15 8 27.96	+ 0.272	20 42 52.7	13.04	0 59.5		
25	13 20 16.24	13.004	9 36 15.8	97.80	1 5.9	25	15 8 18.48	- 1.075	20 35 52.2	22.11	0 55.4		
26	13 25 26.96	+12.889	-10 15 2.5	-96.07	1 7.1	26	15 7 35.77	- 2.495	-20 25 6.7	+31.79	0 50.8		
27	13 30 34.88	12.771	10 53 6.8	94.27	1 8.3	27	15 6 18.32	3.966	20 10 21.8	42.04	0 45.5		
28	13 35 39.96	12.652	11 30 26.9	92.39	1 9.4	28	15 4 25.28	5.454	19 51 25.6	52.71	0 39.7		
29	13 40 42.13	12.528	12 7 1.2	90.45	1 10.5	29	15 1 56.73	6.918	19 28 10.1	63.60	0 33.3		
30	13 45 41.27	12.399	12 42 47.9	88.43	1 11.6	30	14 58 53.85	8.305	19 0 33.8	74.39	0 26.3		
31	13 50 37.25	+12.264	-13 17 45.1	-86.32	1 12.6	31	14 55 19.21	- 9.552	-18 28 43.7	+84.67	0 18.8		
32	13 55 29.89	+12.121	-13 51 50.8	-84.14	1 13.5	32	14 51 16.98	-10.594	-17 52 58.0	+93.92	0 10.9		
Day of the Month.						Day of the Month.							
	3d.	8th.	13th.	18th.	23d.	28th.		3d.	8th.	13th.	18th.	23d.	28th.
Semidiameter .	2.42	2.44	2.48	2.55	2.63	2.75	Semidiameter .	2.91	3.11	3.37	3.71	4.15	4.63
Hor. Parallax .	6.37	6.41	6.53	6.70	6.94	7.25	Hor. Parallax .	7.67	8.20	8.89	9.79	10.93	12.19

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	14 51 16.98	-10.594	-17 52 58.0	+ 93.92	0 10.9	1	15 19 22.87	+ 14.324	-16 47 26.1	-72.31	22 42.5
2	14 46 52.83	11.367	17 13 48.3	101.57	{ 0 9.6 23 54.1	2	15 25 9.42	14.551	17 16 13.3	71.59	22 44.4
3	14 42 13.95	11.813	16 31 59.8	107.05	23 45.4	3	15 31 1.17	14.757	17 44 40.1	70.61	22 46.4
4	14 37 28.70	11.893	15 48 30.9	109.86	23 36.8	4	15 36 57.67	14.948	18 12 40.5	69.40	22 48.5
5	14 32 46.12	11.588	15 4 30.4	109.62	23 28.4	5	15 42 58.54	15.123	18 40 9.5	67.98	22 50.6
6	14 28 15.40	-10.909	-14 21 14.0	+ 106.21	23 20.3	6	15 49 3.46	+ 15.286	-19 7 2.3	-66.39	22 52.9
7	14 24 5.20	9.886	13 39 56.7	99.72	23 12.7	7	15 55 12.16	15.438	19 33 14.8	64.63	22 55.1
8	14 20 23.15	8.574	13 1 49.2	90.48	23 5.7	8	16 1 24.40	15.581	19 58 43.3	62.72	22 57.4
9	14 17 15.40	7.040	12 27 51.2	79.02	22 59.2	9	16 7 39.98	15.716	20 23 24.3	60.68	22 59.8
10	14 14 46.40	5.358	11 58 48.9	65.96	22 53.5	10	16 13 58.73	15.845	20 47 14.9	58.52	23 2.2
11	14 12 58.86	-3.597	-11 35 12.7	+ 51.94	22 48.4	11	16 20 20.50	+ 15.968	-21 10 12.3	-56.25	23 4.7
12	14 11 53.85	1.823	11 17 18.0	37.60	22 44.1	12	16 26 45.16	16.086	21 32 13.9	53.87	23 7.2
13	14 11 31.08	-0.086	11 5 6.4	23.44	22 40.4	13	16 33 12.59	16.199	21 53 17.3	51.40	23 9.8
14	14 11 49.14	+ 1.575	10 58 28.4	+ 9.84	22 37.4	14	16 39 42.69	16.309	22 13 20.4	48.84	23 12.4
15	14 12 45.84	3.130	10 57 5.9	- 2.81	22 35.0	15	16 46 15.37	16.414	22 32 21.0	46.20	23 15.0
16	14 14 18.45	+ 4.566	-11 0 34.9	- 14.41	22 33.1	16	16 52 50.54	+ 16.516	-22 50 17.4	-43.48	23 17.7
17	14 16 23.97	5.872	11 8 28.1	24.81	22 31.7	17	16 59 28.13	16.615	23 7 7.6	40.69	23 20.4
18	14 18 59.29	7.050	11 20 16.3	34.00	22 30.8	18	17 6 8.05	16.711	23 22 49.9	37.82	23 23.2
19	14 22 1.39	8.104	11 35 30.8	42.00	22 30.3	19	17 12 50.24	16.804	23 37 22.7	34.90	23 26.0
20	14 25 27.33	9.039	11 53 43.2	48.84	22 30.1	20	17 19 34.62	16.894	23 50 44.4	31.90	23 28.8
21	14 29 14.42	+ 9.868	-12 14 26.9	- 54.62	22 30.2	21	17 26 21.13	+ 16.981	-24 2 53.4	-28.84	23 31.7
22	14 33 20.20	10.598	12 37 17.3	59.42	22 30.6	22	17 33 9.69	17.065	24 13 48.2	25.72	23 34.6
23	14 37 42.45	11.242	13 1 51.9	63.33	22 31.3	23	17 40 6.24	17.146	24 23 27.6	22.54	23 37.6
24	14 42 19.22	11.809	13 27 50.6	66.44	22 32.2	24	17 46 52.70	17.224	24 31 49.9	19.31	23 40.5
25	14 47 8.76	12.309	13 54 55.1	68.83	22 33.2	25	17 53 46.99	17.299	24 38 53.9	16.02	23 43.5
26	14 52 9.59	+ 12.751	-14 22 49.4	- 70.60	22 34.4	26	18 0 43.04	+ 17.370	-24 44 38.2	-12.67	23 46.6
27	14 57 20.38	13.141	14 51 19.5	71.81	22 35.8	27	18 7 40.75	17.438	24 49 1.6	9.27	23 49.6
28	15 2 40.00	13.488	15 20 12.5	72.53	22 37.3	28	18 14 40.05	17.503	24 52 2.9	5.82	23 52.7
29	15 8 7.49	13.797	15 49 17.6	72.82	22 39.0	29	18 21 40.84	17.562	24 53 40.7	- 2.32	23 55.8
30	15 13 42.02	14.075	16 18 24.9	72.73	22 40.7	30	18 28 43.02	17.618	24 53 53.9	+ 1.23	23 58.9
31	15 19 22.87	+ 14.324	-16 47 26.1	- 72.31	22 42.5	31	18 35 46.48	+ 17.669	-24 52 41.3	+ 4.82	
32	15 25 9.42	+ 14.551	-17 16 13.3	- 71.59	22 44.4	32	18 42 51.11	+ 17.715	-24 50 1.9	+ 8.46	0 2.0

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	32d.
Semidiameter	4.95	4.81	4.27	3.69	3.23	2.91	Semidiameter	2.69	2.54	2.44	2.37	2.33	2.31	2.32
Hor. Parallax	13.03	12.68	11.26	9.72	8.51	7.73	Hor. Parallax	7.10	6.70	6.42	6.26	6.15	6.10	6.12

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	16 40 2.51	+13.105	—20 54 41.9	—31.04	21 59.5	1	19 26 29.41	+13.375	—22 3 54.5	+20.89	22 43.8
2	16 45 17.51	13.144	21 6 48.9	29.55	22 0.8	2	19 31 50.11	13.348	21 55 13.3	22.55	22 45.2
3	16 50 33.44	13.182	21 18 19.9	28.03	22 2.1	3	19 37 10.13	13.319	21 45 52.4	24.20	22 46.6
4	16 55 50.26	13.219	21 29 14.3	26.49	22 3.4	4	19 42 29.42	13.288	21 35 52.1	25.83	22 48.0
5	17 1 7.95	13.254	21 39 31.6	24.93	22 4.8	5	19 47 47.95	13.255	21 25 12.8	27.44	22 49.3
6	17 6 26.47	+13.288	—21 49 11.3	—23.35	22 6.2	6	19 53 5.68	+13.221	—21 13 55.0	+29.04	22 50.7
7	17 11 45.77	13.320	21 58 12.9	21.76	22 7.6	7	19 58 22.57	13.185	21 1 59.0	30.62	22 52.0
8	17 17 5.81	13.350	22 6 35.9	20.15	22 9.0	8	20 3 38.58	13.148	20 49 25.4	32.18	22 53.3
9	17 22 26.56	13.378	22 14 20.0	18.52	22 10.4	9	20 8 53.68	13.110	20 36 14.6	33.71	22 54.6
10	17 27 47.96	13.404	22 21 24.7	16.87	22 11.9	10	20 14 7.84	13.070	20 22 27.1	35.22	22 55.9
11	17 33 9.95	+13.428	—22 27 49.7	—15.20	22 13.3	11	20 19 21.02	+13.029	—20 8 3.4	+36.72	22 57.1
12	17 38 32.49	13.459	22 33 34.5	13.52	22 14.8	12	20 24 33.21	12.986	19 53 4.2	38.20	22 58.4
13	17 43 55.53	13.469	22 38 38.8	11.83	22 16.2	13	20 29 44.37	12.943	19 37 30.0	39.65	22 59.6
14	17 49 19.01	13.486	22 43 2.5	10.13	22 17.6	14	20 34 54.49	12.899	19 21 21.3	41.07	23 0.8
15	17 54 42.88	13.501	22 46 45.2	8.42	22 19.1	15	20 40 3.54	12.854	19 4 38.8	42.46	23 2.0
16	18 0 7.06	+13.513	—22 49 46.7	—6.70	22 20.5	16	20 45 11.50	+12.808	—18 47 23.1	+43.83	23 3.2
17	18 5 31.51	13.523	22 52 6.8	4.98	22 22.0	17	20 50 18.35	12.762	18 29 34.8	45.17	23 4.4
18	18 10 56.17	13.530	22 53 45.3	3.25	22 23.5	18	20 55 24.09	12.715	18 11 14.6	46.49	23 5.5
19	18 16 20.98	13.535	22 54 42.2	—1.50	22 24.9	19	21 0 28.69	12.668	17 52 23.2	47.78	23 6.6
20	18 21 45.87	13.537	22 54 57.4	+0.25	22 26.4	20	21 5 32.15	12.620	17 33 1.2	49.04	23 7.7
21	18 27 10.79	+13.537	—22 54 30.8	+1.99	22 27.9	21	21 10 34.46	+12.572	—17 13 9.4	+50.27	23 8.8
22	18 32 35.67	13.534	22 53 22.3	3.73	22 29.4	22	21 15 35.61	12.524	16 52 48.3	51.47	23 9.9
23	18 38 0.44	13.529	22 51 32.0	5.47	22 30.8	23	21 20 35.60	12.476	16 31 58.7	52.64	23 10.9
24	18 43 25.05	13.521	22 48 59.9	7.21	22 32.3	24	21 25 34.44	12.428	16 10 41.4	53.79	23 11.9
25	18 48 49.44	13.510	22 45 46.2	8.94	22 33.8	25	21 30 32.13	12.380	15 48 57.0	54.91	23 12.9
26	18 54 13.56	+13.498	—22 41 50.8	+10.67	22 35.3	26	21 35 28.67	+12.332	—15 26 46.3	+55.99	23 13.9
27	18 59 37.35	13.484	22 37 13.9	12.39	22 36.7	27	21 40 24.07	12.285	15 4 9.8	57.04	23 14.9
28	19 5 0.75	13.467	22 31 55.8	14.11	22 38.2	28	21 45 18.35	12.238	14 41 8.5	58.06	23 15.8
29	19 10 23.70	13.448	22 25 56.6	15.82	22 39.6	29	21 50 11.51	12.192	14 17 42.9	59.05	23 16.7
30	19 15 46.16	13.426	22 19 16.4	17.52	22 41.0	30	21 55 3.58	12.147	13 53 53.8	60.02	23 17.6
31	19 21 8.08	+13.401	—22 11 55.6	+19.21	22 42.4	31	21 59 54.57	+12.102	—13 29 41.9	+60.96	23 18.5
32	19 26 29.41	+13.375	—22 3 54.5	+20.89	22 43.8	32	22 4 44.50	+12.058	—13 5 8.0	+61.86	23 19.4
Day of the Month.						Day of the Month.					
	1st.	6th.	11th.	16th.	21st.		5th.	10th.	15th.	20th.	25th.
	"	"	"	"	"		"	"	"	"	"
Semidiameter .	6.10	6.00	5.90	5.81	5.72	Semidiameter .	5.50	5.43	5.37	5.32	5.27
Hor. Parallax .	6.29	6.17	6.07	5.98	5.89	Hor. Parallax .	5.66	5.59	5.53	5.47	5.42

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	21 50 11.51	+12.192	-14 17 42.9	+59.05	23 16.7	1	0 14 47.46	+11.351	+0 2 17.0	+74.75	23 38.8
2	21 55 3.58	12.147	13 53 53.8	60.02	23 17.6	2	0 19 19.84	11.348	0 32 11.4	74.78	23 39.4
3	21 59 54.57	12.102	13 29 41.9	60.96	23 18.5	3	0 23 52.18	11.347	1 2 6.0	74.77	23 40.0
4	22 4 44.50	12.058	13 5 8.0	61.86	23 19.4	4	0 28 24.53	11.349	1 32 0.1	74.73	23 40.6
5	22 9 33.40	12.016	12 40 12.7	62.73	23 20.3	5	0 32 56.92	11.352	2 1 53.1	74.66	23 41.2
6	22 14 21.28	+11.974	-12 14 56.8	+63.57	23 21.1	6	0 37 29.40	+11.357	+2 31 44.2	+74.57	23 41.8
7	22 19 8.17	11.933	11 49 21.0	64.38	23 21.9	7	0 42 2.02	11.363	3 1 32.6	74.45	23 42.4
8	22 23 54.10	11.894	11 23 26.1	65.17	23 22.7	8	0 46 34.82	11.371	3 31 17.7	74.30	23 43.0
9	22 28 39.09	11.856	10 57 12.7	65.93	23 23.5	9	0 51 7.83	11.381	4 0 58.7	74.12	23 43.6
10	22 33 23.16	11.819	10 30 41.7	66.65	23 24.3	10	0 55 41.10	11.392	4 30 35.0	73.90	23 44.2
11	22 38 6.35	+11.782	-10 3 53.7	+67.34	23 25.1	11	1 0 14.67	+11.405	+5 0 5.9	+73.65	23 44.8
12	22 42 48.69	11.747	9 36 49.6	68.00	23 25.8	12	1 4 48.59	11.420	5 29 30.6	73.38	23 45.5
13	22 47 30.21	11.713	9 9 30.0	68.63	23 26.5	13	1 9 22.89	11.438	5 58 48.3	73.08	23 46.1
14	22 52 10.93	11.681	8 41 55.7	69.22	23 27.3	14	1 13 57.61	11.457	6 27 58.4	72.75	23 46.7
15	22 56 50.89	11.650	8 14 7.4	69.78	23 28.0	15	1 18 32.79	11.477	6 57 0.2	72.39	23 47.4
16	23 1 30.13	+11.620	-7 46 5.9	+70.32	23 28.7	16	1 23 8.47	+11.498	+7 25 52.8	+71.99	23 48.0
17	23 6 8.68	11.592	7 17 51.8	70.83	23 29.4	17	1 27 44.69	11.521	7 54 35.6	71.56	23 48.7
18	23 10 46.56	11.565	6 49 26.0	71.31	23 30.1	18	1 32 21.48	11.545	8 23 7.9	71.10	23 49.4
19	23 15 23.82	11.540	6 20 49.2	71.75	23 30.7	19	1 36 58.87	11.571	8 51 28.8	70.62	23 50.1
20	23 20 0.48	11.516	5 52 2.1	72.16	23 31.4	20	1 41 36.90	11.598	9 19 37.7	70.10	23 50.8
21	23 24 36.58	+11.493	-5 23 5.5	+72.54	23 32.0	21	1 46 15.59	+11.627	+9 47 33.7	+69.55	23 51.5
22	23 29 12.16	11.472	4 54 0.1	72.89	23 32.7	22	1 50 54.99	11.657	10 15 16.2	68.97	23 52.2
23	23 33 47.25	11.453	4 24 46.7	73.21	23 33.4	23	1 55 35.12	11.688	10 42 44.4	68.37	23 52.9
24	23 38 21.90	11.435	3 55 26.0	73.50	23 34.0	24	2 0 16.02	11.720	11 9 57.7	67.73	23 53.7
25	23 42 56.13	11.418	3 25 58.7	73.76	23 34.6	25	2 4 57.72	11.754	11 36 55.2	67.05	23 54.5
26	23 47 29.98	+11.403	-2 56 25.5	+73.99	23 35.2	26	2 9 40.23	+11.789	+12 3 36.2	+66.35	23 55.3
27	23 52 3.49	11.390	2 26 47.1	74.19	23 35.8	27	2 14 23.60	11.825	12 30 0.0	65.62	23 56.1
28	23 56 36.70	11.379	1 57 4.3	74.36	23 36.4	28	2 19 7.86	11.863	12 56 5.8	64.85	23 56.9
29	0 1 9.66	11.369	1 27 17.8	74.50	23 37.0	29	2 23 53.03	11.902	13 21 53.0	64.05	23 57.7
30	0 5 42.42	11.361	0 57 28.3	74.61	23 37.6	30	2 28 39.14	11.942	13 47 20.7	63.23	23 58.6
31	0 10 15.00	+11.355	-0 27 36.5	+74.69	23 38.2	31	2 33 26.22	+11.982	+14 12 28.2	+62.38	23 59.4
32	0 14 47.46	+11.351	+0 2 17.0	+74.75	23 38.8	32	2 38 14.29	+12.023	+14 37 14.9	+61.50	

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.
	"	"	"	"	"	"		"	"	"	"	"	"
Semidiameter . . .	5.22	5.18	5.14	5.10	5.07	5.04	Semidiameter . . .	5.01	4.99	4.97	4.96	4.95	4.95
Hor. Parallax . . .	5.37	5.33	5.29	5.25	5.22	5.19	Hor. Parallax . . .	5.16	5.13	5.11	5.10	5.09	5.09

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.						JUNE.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"			h m s	s	° ' "	"	
1	2 33 26.22	+11.982	+14 12 28.2	+62.38	23 59.4	1	5 10 34.38	+13.287	+23 19 48.2	+21.57	0 33.5
2	2 38 14.29	12.023	14 37 14.9	61.50		2	5 15 53.58	13.313	23 28 5.6	19.87	0 34.9
3	2 43 3.37	12.066	15 1 39.9	60.58	0 0.3	3	5 21 13.38	13.336	23 35 42.1	18.16	0 36.3
4	2 47 53.49	12.110	15 25 42.6	59.63	0 1.2	4	5 26 33.72	13.357	23 42 37.4	16.44	0 37.7
5	2 52 44.66	12.154	15 49 22.1	58.65	0 2.1	5	5 31 54.57	13.377	23 48 51.1	14.70	0 39.1
6	2 57 36.90	+12.199	+16 12 37.8	+57.64	0 3.0	6	5 37 15.86	+13.395	+23 54 22.9	+12.95	0 40.5
7	3 2 30.23	12.245	16 35 28.9	56.60	0 4.0	7	5 42 37.55	13.411	23 59 12.6	11.19	0 41.9
8	3 7 24.66	12.291	16 57 54.7	55.56	0 4.9	8	5 47 59.59	13.424	24 3 20.1	9.42	0 43.3
9	3 12 20.21	12.338	17 19 54.5	54.43	0 5.9	9	5 53 21.90	13.435	24 6 45.0	7.65	0 44.8
10	3 17 16.88	12.385	17 41 27.5	53.30	0 6.9	10	5 58 44.45	13.444	24 9 27.2	5.87	0 46.2
11	3 22 14.69	+12.432	+18 2 33.1	+52.14	0 7.9	11	6 4 7.16	+13.450	+24 11 26.6	+4.08	0 47.6
12	3 27 13.64	12.479	18 23 10.5	50.95	0 8.9	12	6 9 29.98	13.452	24 12 43.0	2.29	0 49.1
13	3 32 13.73	12.527	18 43 18.9	49.73	0 10.0	13	6 14 52.85	13.452	24 13 16.3	+0.50	0 50.5
14	3 37 14.95	12.575	19 2 57.7	48.48	0 11.1	14	6 20 15.70	13.450	24 13 6.6	-1.30	0 51.9
15	3 42 17.31	12.622	19 22 6.2	47.20	0 12.2	15	6 25 38.47	13.446	24 12 13.8	3.10	0 53.4
16	3 47 20.80	+12.669	+19 40 43.6	+45.90	0 13.3	16	6 31 1.10	+13.440	+24 10 38.0	-4.89	0 54.8
17	3 52 25.40	12.715	19 58 49.4	44.57	0 14.4	17	6 36 23.52	13.430	24 8 19.1	6.68	0 56.3
18	3 57 31.12	12.761	20 16 22.8	43.21	0 15.6	18	6 41 45.68	13.416	24 5 17.4	8.46	0 57.7
19	4 2 37.92	12.806	20 33 23.2	41.81	0 16.8	19	6 47 7.50	13.400	24 1 32.9	10.24	0 59.1
20	4 7 45.80	12.850	20 49 49.9	40.39	0 18.0	20	6 52 28.92	13.382	23 57 5.7	12.01	1 0.5
21	4 12 54.72	+12.893	+21 5 42.2	+38.95	0 19.2	21	6 57 49.89	+13.363	+23 51 56.1	-13.77	1 1.9
22	4 18 4.68	12.936	21 20 59.6	37.48	0 20.4	22	7 3 10.35	13.341	23 46 4.2	15.52	1 3.3
23	4 23 15.64	12.978	21 35 41.4	35.99	0 21.6	23	7 8 30.24	13.316	23 39 30.3	17.27	1 4.7
24	4 28 27.58	13.018	21 49 47.1	34.47	0 22.9	24	7 13 49.50	13.288	23 32 14.8	19.01	1 6.1
25	4 33 40.46	13.056	22 3 16.2	32.93	0 24.2	25	7 19 8.08	13.258	23 24 17.8	20.73	1 7.5
26	4 38 54.26	+13.093	+22 16 7.9	+31.37	0 25.5	26	7 24 25.94	+13.227	+23 15 39.7	-22.44	1 8.9
27	4 44 8.95	13.129	22 28 21.9	29.79	0 26.8	27	7 29 43.02	13.194	23 6 20.8	24.13	1 10.2
28	4 49 24.49	13.164	22 39 57.6	28.18	0 28.1	28	7 34 59.27	13.159	22 56 21.6	25.81	1 11.5
29	4 54 40.84	13.197	22 50 54.6	26.55	0 29.4	29	7 40 14.65	13.122	22 45 42.4	27.47	1 12.8
30	4 59 57.97	13.229	23 1 12.3	24.91	0 30.7	30	7 45 29.13	13.083	22 34 23.6	29.11	1 14.1
31	5 5 15.83	+13.259	+23 10 50.3	+23.25	0 32.1	31	7 50 42.65	+13.043	+22 22 25.7	-30.73	1 15.4
32	5 10 34.38	+13.287	+23 19 48.2	+21.57	0 33.5	32	7 55 55.18	+13.001	+22 9 49.2	-32.33	1 16.7
Day of the Month.						Day of the Month.					
1st.						5th.					
6th.						10th.					
11th.						15th.					
16th.						20th.					
21st.						25th.					
26th.						30th.					
31st.											
Semidiameter						Semidiameter					
Hor. Parallax						Hor. Parallax					
4.94						5.03					
5.08						5.18					
4.94						5.06					
4.95						5.09					
4.96						5.13					
4.98						5.18					
5.00						5.24					
5.11						5.28					
5.12						5.33					
5.15						5.38					

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

JULY.						AUGUST.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	7 50 42.65	+13.043	+22 22 25.7	-30.73	1 15.4	1	10 23 4.13	+11.524	+11 41 41.6	-68.08	1 45.6
2	7 55 55.18	13.001	22 9 49.2	32.33	1 16.7	2	10 27 40.18	11.481	11 14 18.7	68.82	1 46.2
3	8 1 6.69	12.958	21 56 34.5	33.90	1 17.9	3	10 32 15.23	11.440	10 46 38.4	69.53	1 46.9
4	8 6 17.15	12.914	21 42 42.2	35.45	1 19.2	4	10 36 49.33	11.401	10 18 41.5	70.21	1 47.5
5	8 11 26.53	12.868	21 28 12.7	36.98	1 20.4	5	10 41 22.50	11.363	9 50 28.7	70.85	1 48.1
6	8 16 34.80	+12.821	+21 13 6.7	-38.50	1 21.6	6	10 45 54.77	+11.326	+ 9 22 0.8	-71.47	1 48.7
7	8 21 41.94	12.773	20 57 24.6	40.00	1 22.8	7	10 50 26.18	11.291	8 53 18.4	72.06	1 49.3
8	8 26 47.92	12.725	20 41 47.0	41.47	1 23.9	8	10 54 56.77	11.258	8 24 22.1	72.62	1 49.8
9	8 31 52.73	12.676	20 24 14.6	42.90	1 25.0	9	10 59 26.57	11.226	7 55 12.8	73.15	1 50.4
10	8 36 56.34	12.626	20 6 47.9	44.31	1 26.1	10	11 3 55.62	11.196	7 25 51.1	73.65	1 50.9
11	8 41 58.75	+12.575	+19 48 47.7	-45.70	1 27.2	11	11 8 23.95	+11.167	+ 6 56 17.8	-74.11	1 51.4
12	8 46 59.93	12.524	19 30 14.5	47.06	1 28.3	12	11 12 51.60	11.139	6 26 33.6	74.55	1 51.9
13	8 51 59.88	12.472	19 11 9.0	48.39	1 29.4	13	11 17 18.60	11.113	5 56 39.1	74.96	1 52.4
14	8 56 58.59	12.420	18 51 31.9	49.69	1 30.4	14	11 21 44.99	11.088	5 26 35.2	75.35	1 52.9
15	9 1 56.05	12.368	18 31 23.8	50.97	1 31.4	15	11 26 10.81	11.064	4 56 22.5	75.71	1 53.4
16	9 6 52.25	+12.315	+18 10 45.5	-52.21	1 32.4	16	11 30 36.09	+11.042	+ 4 26 1.7	-76.03	1 53.9
17	9 11 47.19	12.262	17 49 37.7	53.42	1 33.4	17	11 35 0.86	11.022	3 55 33.7	76.31	1 54.4
18	9 16 40.86	12.210	17 28 1.0	54.61	1 34.3	18	11 39 25.17	11.004	3 24 59.0	76.57	1 54.9
19	9 21 33.27	12.157	17 5 56.2	55.77	1 35.3	19	11 43 49.06	10.987	2 54 18.4	76.80	1 55.3
20	9 26 24.43	12.105	16 43 23.9	56.90	1 36.2	20	11 48 12.56	10.972	2 23 32.5	77.01	1 55.7
21	9 31 14.32	+12.053	+16 20 24.9	-58.00	1 37.1	21	11 52 35.70	+10.958	+ 1 52 42.1	-77.18	1 56.2
22	9 36 2.97	12.001	15 57 0.0	59.07	1 38.0	22	11 56 58.53	10.946	1 21 47.9	77.32	1 56.6
23	9 40 50.38	11.950	15 33 9.8	60.11	1 38.8	23	12 1 21.10	10.935	0 50 50.5	77.44	1 57.0
24	9 45 36.57	11.899	15 8 55.1	61.11	1 39.6	24	12 5 43.43	10.926	+ 0 19 50.8	77.53	1 57.5
25	9 50 21.55	11.849	14 44 16.6	62.09	1 40.4	25	12 10 5.56	10.919	- 0 11 10.7	77.59	1 57.9
26	9 55 5.33	+11.800	+14 19 15.1	-63.04	1 41.2	26	12 14 27.54	+10.914	- 0 42 13.3	-77.61	1 58.3
27	9 59 47.94	11.751	13 53 51.1	63.95	1 42.0	27	12 18 49.42	10.910	1 13 16.2	77.61	1 58.8
28	10 4 29.39	11.703	13 28 5.6	64.83	1 42.8	28	12 23 11.23	10.908	1 44 18.8	77.58	1 59.2
29	10 9 9.71	11.656	13 1 59.1	65.68	1 43.5	29	12 27 33.01	10.908	2 15 20.5	77.53	1 59.6
30	10 13 48.92	11.611	12 35 32.5	66.51	1 44.2	30	12 31 54.80	10.909	2 46 20.4	77.45	2 0.1
31	10 18 27.05	+11.567	+12 8 46.4	-67.31	1 44.9	31	12 36 16.65	+10.912	- 3 17 18.0	-77.34	2 0.5
32	10 23 4.13	+11.524	+11 41 41.6	-68.08	1 45.6	32	12 40 38.61	+10.918	- 3 48 12.5	-77.20	2 0.9
Day of the Month.						Day of the Month.					
5th. 10th. 15th. 20th. 25th. 30th.						4th. 9th. 14th. 19th. 24th. 29th.					
Semidiameter . . . 5.28 5.34 5.41 5.49 5.57 5.65						Semidiameter . . . 5.74 5.84 5.95 6.07 6.19 6.33					
Hor. Parallax . . . 5.44 5.50 5.57 5.65 5.73 5.82						Hor. Parallax . . . 5.92 6.02 6.14 6.26 6.38 6.51					

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.							OCTOBER.						
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.		
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.			
	h m s	s	° ' "	"			h m	h m s	s	° ' "		"	
1	12 40 38.61	+10.918	3 48 12.5	-77.20	2 0.9	1	14 55 30.39	+11.739	17 54 3.4	-59.26	2 17.5		
2	12 45 0.71	10.925	4 19 3.4	77.03	2 1.3	2	15 0 12.63	11.781	18 17 33.2	58.20	2 18.2		
3	12 49 23.00	10.934	4 49 49.9	76.83	2 1.7	3	15 4 55.89	11.824	18 40 37.2	57.11	2 19.0		
4	12 53 45.53	10.945	5 20 31.3	76.61	2 2.1	4	15 9 40.18	11.867	19 3 14.6	55.99	2 19.8		
5	12 58 8.33	10.957	5 51 7.0	76.36	2 2.6	5	15 14 25.50	11.910	19 25 24.7	54.84	2 20.6		
6	13 2 31.44	+10.971	6 21 36.2	-76.08	2 3.0	6	15 19 11.85	+11.953	19 47 6.9	-53.66	2 21.4		
7	13 6 54.92	10.986	6 51 58.3	75.76	2 3.5	7	15 23 59.24	11.996	20 8 20.3	52.45	2 22.3		
8	13 11 18.79	11.003	7 22 12.6	75.41	2 3.9	8	15 28 47.66	12.038	20 29 4.5	51.22	2 23.2		
9	13 15 43.10	11.022	7 52 18.3	75.04	2 4.4	9	15 33 37.10	12.080	20 49 18.6	49.95	2 24.1		
10	13 20 7.87	11.043	8 22 14.8	74.65	2 4.9	10	15 38 27.54	12.122	21 9 2.0	48.65	2 25.0		
11	13 24 33.15	+11.065	8 52 1.3	-74.23	2 5.3	11	15 43 18.98	+12.163	21 28 14.0	-47.33	2 25.9		
12	13 28 58.98	11.088	9 21 37.1	73.77	2 5.8	12	15 48 11.39	12.203	21 46 54.0	45.98	2 26.8		
13	13 33 25.38	11.112	9 51 1.6	73.27	2 6.3	13	15 53 4.76	12.243	22 5 1.4	44.61	2 27.8		
14	13 37 52.38	11.138	10 20 13.9	72.74	2 6.8	14	15 57 59.05	12.282	22 22 35.3	43.21	2 28.8		
15	13 42 20.02	11.165	10 49 13.4	72.19	2 7.3	15	16 2 54.25	12.319	22 39 35.3	41.78	2 29.7		
16	13 46 48.33	+11.194	11 17 59.3	-71.61	2 7.9	16	16 7 50.32	+12.354	22 56 0.7	-40.33	2 30.7		
17	13 51 17.34	11.224	11 46 30.9	71.00	2 8.4	17	16 12 47.23	12.388	23 11 51.1	38.85	2 31.7		
18	13 55 47.07	11.255	12 14 47.5	70.36	2 9.0	18	16 17 44.93	12.420	23 27 5.8	37.35	2 32.7		
19	14 0 17.56	11.287	12 42 48.3	69.69	2 9.6	19	16 22 43.39	12.451	23 41 44.3	35.83	2 33.8		
20	14 4 48.82	11.320	13 10 32.6	68.99	2 10.1	20	16 27 42.56	12.480	23 55 45.8	34.29	2 34.8		
21	14 9 20.88	+11.354	13 37 59.7	-68.26	2 10.7	21	16 32 42.40	+12.507	24 9 10.1	-32.73	2 35.8		
22	14 13 53.77	11.389	14 5 8.8	67.49	2 11.3	22	16 37 42.86	12.531	24 21 56.7	31.14	2 36.9		
23	14 18 27.51	11.425	14 31 59.2	66.69	2 11.9	23	16 42 43.89	12.553	24 34 5.0	29.53	2 38.0		
24	14 23 2.12	11.461	14 58 30.3	65.87	2 12.5	24	16 47 45.42	12.573	24 45 34.7	27.91	2 39.1		
25	14 27 37.63	11.498	15 24 41.2	65.02	2 13.2	25	16 52 47.41	12.592	24 56 25.2	26.28	2 40.2		
26	14 32 14.04	+11.536	15 50 31.3	-64.14	2 13.9	26	16 57 49.80	+12.608	25 6 36.3	-24.63	2 41.3		
27	14 36 51.38	11.575	16 15 59.7	63.23	2 14.6	27	17 2 52.52	12.621	25 16 7.5	22.96	2 42.4		
28	14 41 29.67	11.615	16 41 5.9	62.28	2 15.3	28	17 7 55.53	12.630	25 24 58.5	21.28	2 43.5		
29	14 46 8.92	11.656	17 5 49.1	61.30	2 16.0	29	17 12 58.75	12.637	25 33 9.0	19.59	2 44.6		
30	14 50 49.16	11.697	17 30 8.5	60.29	2 16.7	30	17 18 2.13	12.642	25 40 38.8	17.89	2 45.7		
31	14 55 30.39	+11.739	17 54 3.4	-59.26	2 17.5	31	17 23 5.61	+12.646	25 47 27.5	-16.17	2 46.9		
32	15 0 12.63	+11.781	18 17 33.2	-58.20	2 18.2	32	17 28 9.12	+12.646	25 53 35.0	-14.45	2 48.0		
Day of the Month.						Day of the Month.							
3d. 8th. 13th. 18th. 23d. 28th.						3d. 8th. 13th. 18th. 23d. 28th.							
Semidiameter . . .						Semidiameter . . .							
Hor. Parallax . . .						Hor. Parallax . . .							
6.47 6.63 6.79 6.97 7.16 7.37						7.59 7.82 8.09 8.37 8.67 9.00							
6.66 6.82 6.99 7.18 7.38 7.59						7.82 8.07 8.32 8.61 8.92 9.26							

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.								
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.			
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.				
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m			
1	17 28 9.12	+12.646	-25 53 35.0	-14.45	2 48.0	1	19 53 31.02	+11.063	-23 43 25.0	+33.99	3 15.0			
2	17 33 12.59	12.643	25 59 1.1	12.72	2 49.1	2	19 57 55.32	10.960	23 29 33.7	35.28	3 15.5			
3	17 38 15.94	12.636	26 3 45.6	10.99	2 50.2	3	20 2 17.12	10.855	23 15 11.8	36.54	3 15.9			
4	17 43 19.11	12.627	26 7 48.5	9.25	2 51.3	4	20 6 36.36	10.747	23 0 20.0	37.77	3 16.3			
5	17 48 22.02	12.615	26 11 9.6	7.51	2 52.4	5	20 10 52.97	10.636	22 44 59.2	38.96	3 16.6			
6	17 53 24.59	+12.599	-26 13 48.9	-5.76	2 53.5	6	20 15 6.88	+10.522	-22 29 10.3	+40.11	3 16.9			
7	17 58 26.75	12.580	26 15 46.3	4.02	2 54.6	7	20 19 18.02	10.405	22 12 54.0	41.23	3 17.1			
8	18 3 28.40	12.557	26 17 2.0	2.28	2 55.7	8	20 23 26.34	10.286	21 56 11.3	42.31	3 17.3			
9	18 8 29.47	12.531	26 17 35.9	-0.55	2 56.8	9	20 27 31.75	10.164	21 39 3.1	43.35	3 17.4			
10	18 13 29.87	12.502	26 17 28.2	+1.18	2 57.9	10	20 31 34.19	10.039	21 21 30.3	44.35	3 17.4			
11	18 18 29.51	+12.469	-26 16 38.9	+2.91	2 58.9	11	20 35 33.58	+9.911	-21 3 33.8	+45.32	3 17.5			
12	18 23 28.32	12.432	26 15 8.4	4.63	2 59.9	12	20 39 29.86	9.779	20 45 14.6	46.25	3 17.5			
13	18 28 26.21	12.392	26 12 56.6	6.35	3 0.9	13	20 43 22.95	9.644	20 26 33.7	47.14	3 17.4			
14	18 33 23.07	12.348	26 10 4.0	8.06	3 1.9	14	20 47 12.77	9.505	20 7 32.0	47.98	3 17.3			
15	18.38 18.83	12.299	26 6 30.7	9.75	3 2.9	15	20 50 59.25	9.363	19 48 10.7	48.78	3 17.1			
16	18 43 13.40	+12.247	-26 2 17.1	+11.42	3 3.9	16	20 54 42.30	+9.219	-19 28 30.7	+49.54	3 17.0			
17	18 48 6.69	12.192	25 57 23.5	13.07	3 4.8	17	20 58 21.83	9.072	19 8 33.1	50.25	3 16.7			
18	18 52 58.60	12.133	25 51 50.3	14.70	3 5.8	18	21 1 57.78	8.922	18 48 18.9	50.91	3 16.3			
19	18 57 49.06	12.071	25 45 38.0	16.32	3 6.7	19	21 5 30.04	8.767	18 27 49.3	51.53	3 15.9			
20	19 2 37.97	12.005	25 38 47.0	17.92	3 7.6	20	21 8 58.52	8.608	18 7 5.3	52.11	3 15.4			
21	19 7 25.26	+11.935	-25 31 17.7	+19.51	3 8.4	21	21 12 23.13	+8.444	-17 46 8.1	+52.64	3 14.9			
22	19 12 10.83	11.862	25 23 10.6	21.07	3 9.2	22	21 15 43.78	8.276	17 24 58.7	53.12	3 14.3			
23	19 16 54.60	11.786	25 14 26.5	22.61	3 10.0	23	21 19 0.36	8.105	17 3 38.3	53.55	3 13.6			
24	19 21 36.49	11.706	25 5 5.7	24.12	3 10.7	24	21 22 12.78	7.930	16 42 8.2	53.94	3 12.9			
25	19 26 16.43	11.623	24 55 8.8	25.61	3 11.4	25	21 25 20.96	7.751	16 20 29.4	54.28	3 12.1			
26	19 30 54.34	+11.537	-24 44 36.4	+27.07	3 12.1	26	21 28 24.78	+7.567	-15 58 42.9	+54.57	3 11.2			
27	19 35 30.15	11.447	24 33 29.2	28.51	3 12.8	27	21 31 24.13	7.379	15 36 50.0	54.81	3 10.2			
28	19 40 3.79	11.355	24 21 47.8	29.92	3 13.4	28	21 34 18.92	7.187	15 14 52.0	55.00	3 9.1			
29	19 44 35.19	11.260	24 9 32.8	31.30	3 14.0	29	21 37 9.04	6.990	14 52 50.0	55.14	3 8.0			
30	19 49 4.29	11.163	23 56 44.9	32.66	3 14.5	30	21 39 54.37	6.787	14 30 45.3	55.22	3 6.8			
31	19 53 31.02	+11.063	-23 43 25.0	+33.99	3 15.0	31	21 42 34.79	+6.580	-14 8 39.3	+55.25	3 5.5			
32	19 57 55.32	+10.960	-23 29 33.7	+35.28	3 15.5	32	21 45 10.17	+6.367	-13 46 33.2	+55.22	3 4.2			
Day of the Month.						Day of the Month.								
	2d.	7th.	12th.	17th.	22d.	27th.		2d.	7th.	12th.	17th.	22d.	27th.	32d.
Semidiameter	9.35	9.74	10.17	10.64	11.16	11.73	Semidiameter	12.36	13.07	13.86	14.75	15.75	16.88	18.15
Hor. Parallax	9.63	10.03	10.47	10.95	11.49	12.07	Hor. Parallax	12.73	13.46	14.27	15.19	16.22	17.38	18.69

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign — indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.							FEBRUARY.						
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.		Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	
	Noon.	Noon.	Noon.	Noon.				Noon.	Noon.	Noon.	Noon.		
	h m s	s	° ' "	"	h m			h m s	s	° ' "	"	h m	
1	10 57 32.03	+1.411	+10 9 19.7	-3.30	16 13.5	1	10 53 5.69	-2.263	+11 40 7.9	+17.64	14 6.3		
2	10 58 4.71	1.312	10 8 7.9	2.68	16 10.1	2	10 52 10.01	2.381	11 47 17.7	18.16	14 1.4		
3	10 58 35.01	1.211	10 7 11.3	2.05	16 6.6	3	10 51 11.54	2.496	11 54 39.8	18.65	13 56.5		
4	10 59 2.88	1.109	10 6 30.0	1.41	16 3.1	4	10 50 10.33	2.608	12 2 13.3	19.12	13 51.5		
5	10 59 28.28	1.005	10 6 4.2	0.75	15 59.6	5	10 49 6.44	2.716	12 9 57.7	19.56	13 46.5		
6	10 59 51.16	+0.900	+10 5 54.3	-0.08	15 56.0	6	10 47 59.95	-2.821	+12 17 52.2	+19.97	13 41.4		
7	11 0 11.48	0.793	10 6 0.4	+0.60	15 52.4	7	10 46 50.93	2.924	12 25 55.9	20.34	13 36.3		
8	11 0 29.20	0.684	10 6 22.9	1.29	15 48.7	8	10 45 39.47	3.024	12 34 8.0	20.67	13 31.2		
9	11 0 44.25	0.573	10 7 2.0	1.98	15 45.0	9	10 44 25.66	3.121	12 42 27.6	20.96	13 26.0		
10	11 0 56.61	0.459	10 7 57.8	2.68	15 41.2	10	10 43 9.60	3.214	12 50 53.8	21.21	13 20.8		
11	11 1 6.24	+0.343	+10 9 10.4	+3.38	15 37.4	11	10 41 51.39	-3.301	+12 59 25.6	+21.42	13 15.6		
12	11 1 13.08	0.225	10 10 40.1	4.09	15 33.6	12	10 40 31.17	3.382	13 8 2.0	21.59	13 10.3		
13	11 1 17.09	+0.106	10 12 27.1	4.81	15 29.7	13	10 39 9.05	3.458	13 16 41.9	21.71	13 5.0		
14	11 1 18.24	-0.014	10 14 31.5	5.53	15 25.7	14	10 37 45.17	3.528	13 25 24.2	21.79	12 59.6		
15	11 1 16.49	0.135	10 16 53.3	6.26	15 21.7	15	10 36 19.67	3.593	13 34 8.1	21.83	12 54.3		
16	11 1 11.80	-0.257	+10 19 32.6	+7.00	15 17.7	16	10 34 52.70	-3.654	+13 42 52.2	+21.83	12 48.9		
17	11 1 4.16	0.381	10 22 29.4	7.73	15 13.6	17	10 33 24.42	3.706	13 51 35.4	21.78	12 43.5		
18	11 0 53.52	0.506	10 25 43.7	8.46	15 9.5	18	10 31 55.01	3.750	14 0 16.5	21.67	12 38.1		
19	11 0 39.86	0.632	10 29 15.5	9.19	15 5.3	19	10 30 24.62	3.785	14 8 54.4	21.50	12 32.6		
20	11 0 23.16	0.759	10 33 4.8	9.91	15 1.0	20	10 28 53.45	3.811	14 17 28.0	21.28	12 27.1		
21	11 0 3.41	-0.887	+10 37 11.4	+10.63	14 56.7	21	10 27 21.67	-3.831	+14 25 56.0	+21.02	12 21.7		
22	10 59 40.60	1.016	10 41 35.0	11.34	14 52.4	22	10 25 49.47	3.845	14 34 17.5	20.72	12 16.2		
23	10 59 14.73	1.144	10 46 15.5	12.04	14 48.0	23	10 24 17.01	3.853	14 42 31.3	20.38	12 10.7		
24	10 58 45.79	1.272	10 51 12.6	12.73	14 43.6	24	10 22 44.48	3.853	14 50 36.4	20.01	12 5.3		
25	10 58 13.80	1.398	10 56 26.1	13.40	14 39.1	25	10 21 12.07	3.844	14 58 32.0	19.60	11 59.8		
26	10 57 38.75	-1.524	+11 1 55.8	+14.06	14 34.5	26	10 19 39.96	-3.827	+15 6 17.1	+19.14	11 54.4		
27	10 57 0.67	1.649	11 7 41.1	14.70	14 29.9	27	10 18 8.35	3.803	15 13 50.9	18.65	11 49.0		
28	10 56 19.58	1.774	11 13 41.7	15.33	14 25.3	28	10 16 37.38	3.773	15 21 12.6	18.13	11 43.6		
29	10 55 35.51	1.898	11 19 57.1	15.94	14 20.6	29	10 15 7.22	3.736	15 28 21.4	17.58	11 38.1		
30	10 54 48.49	2.021	11 26 27.0	16.53	14 15.9	30	10 13 38.04	3.692	15 35 16.6	17.00	11 32.7		
31	10 53 58.54	-2.143	+11 33 10.8	+17.10	14 11.1	31	10 12 10.00	-3.641	+15 41 57.6	+16.39	11 27.3		
32	10 53 5.69	-2.263	+11 40 7.9	+17.64	14 6.3	32	10 10 43.24	-3.584	+15 48 23.9	+15.76	11 21.9		
Day of the Month.							Day of the Month.						
1st. 6th. 11th. 16th. 21st. 26th. 31st.							5th. 10th. 15th. 20th. 25th.						
Semidiameter . 5.40 5.63 5.88 6.14 6.40 6.65 6.89							Semidiameter . 7.10 7.27 7.39 7.45 7.45						
Hor.Parallax . 9.40 9.83 10.26 10.71 11.15 11.59 11.99							Hor. Parallax . 12.36 12.66 12.87 12.98 12.98						

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	10 15 7.22	-3.736	+15 28 21.4	+17.58	11 38.1	1	9 46 14.03	-0.485	+16 52 19.6	-4.15	9 8.1
2	10 13 38.04	3.692	15 35 16.6	17.00	11 32.7	2	9 46 3.89	0.362	16 50 32.6	4.76	9 4.0
3	10 12 10.00	3.641	15 41 57.6	16.39	11 27.3	3	9 45 56.71	0.240	16 48 30.9	5.36	8 59.9
4	10 10 43.24	3.584	15 48 23.9	15.76	11 21.9	4	9 45 52.44	-0.119	16 46 14.9	5.95	8 55.9
5	10 9 17.93	3.521	15 54 34.8	15.11	11 16.6	5	9 45 51.06	+0.002	16 43 44.8	6.53	8 52.0
6	10 7 54.19	-3.453	+16 0 30.0	+14.45	11 11.3	6	9 45 52.55	+0.121	+16 41 1.0	-7.11	8 48.1
7	10 6 32.17	3.379	16 6 8.9	13.77	11 6.0	7	9 45 56.85	0.238	16 38 3.6	7.68	8 44.3
8	10 5 12.00	3.300	16 11 31.2	13.07	11 0.7	8	9 46 3.92	0.353	16 34 52.8	8.23	8 40.5
9	10 3 53.81	3.216	16 16 36.6	12.36	10 55.5	9	9 46 13.72	0.466	16 31 29.0	8.77	8 36.7
10	10 2 37.72	3.126	16 21 24.7	11.64	10 50.4	10	9 46 26.21	0.577	16 27 52.4	9.30	8 33.0
11	10 1 23.84	-3.031	+16 25 55.1	+10.91	10 45.3	11	9 46 41.36	+0.686	+16 24 3.2	-9.81	8 29.4
12	10 0 12.27	2.931	16 30 7.9	10.16	10 40.2	12	9 46 59.13	0.794	16 20 1.6	10.32	8 25.8
13	9 59 3.13	2.827	16 34 2.9	9.41	10 35.1	13	9 47 19.47	0.900	16 15 47.8	10.82	8 22.2
14	9 57 56.50	2.720	16 37 40.0	8.66	10 30.1	14	9 47 42.35	1.005	16 11 21.8	11.32	8 18.6
15	9 56 52.48	2.610	16 40 58.8	7.91	10 25.1	15	9 48 7.71	1.108	16 6 44.0	11.81	8 15.1
16	9 55 51.13	-2.497	+16 43 59.5	+7.16	10 20.2	16	9 48 35.52	+1.209	+16 1 54.6	-12.30	8 11.7
17	9 54 52.55	2.382	16 46 42.1	6.40	10 15.3	17	9 49 5.74	1.308	15 56 53.7	12.78	8 8.3
18	9 53 56.79	2.264	16 49 6.5	5.64	10 10.5	18	9 49 38.34	1.406	15 51 41.5	13.25	8 4.9
19	9 53 3.93	2.143	16 51 12.7	4.89	10 5.7	19	9 50 13.26	1.502	15 46 18.1	13.71	8 1.6
20	9 52 14.02	2.020	16 53 0.9	4.14	10 0.9	20	9 50 50.46	1.596	15 40 43.8	14.16	7 58.3
21	9 51 27.10	-1.893	+16 54 31.1	+3.39	9 56.3	21	9 51 29.91	+1.689	+15 34 58.7	-14.60	7 55.0
22	9 50 43.21	1.765	16 55 43.6	2.65	9 51.6	22	9 52 11.54	1.778	15 29 3.1	15.03	7 51.8
23	9 50 2.40	1.637	16 56 38.4	1.92	9 47.0	23	9 52 55.31	1.866	15 22 57.1	15.46	7 48.6
24	9 49 24.66	1.509	16 57 15.8	1.20	9 42.5	24	9 53 41.16	1.952	15 16 41.0	15.88	7 45.5
25	9 48 50.03	1.380	16 57 36.0	+0.49	9 38.0	25	9 54 29.07	2.036	15 10 14.9	16.29	7 42.3
26	9 48 18.50	-1.250	+16 57 39.2	-0.21	9 33.6	26	9 55 18.95	+2.119	+15 3 38.9	-16.70	7 39.2
27	9 47 50.07	1.120	16 57 25.8	0.90	9 29.2	27	9 56 10.77	2.199	14 56 53.3	17.10	7 36.1
28	9 47 24.74	0.990	16 56 56.1	1.58	9 24.9	28	9 57 4.48	2.277	14 49 58.2	17.49	7 33.1
29	9 47 2.49	0.862	16 56 10.3	2.25	9 20.6	29	9 58 0.04	2.353	14 42 53.8	17.88	7 30.1
30	9 46 43.30	0.735	16 55 8.8	2.90	9 16.4	30	9 58 57.39	2.427	14 35 40.3	18.26	7 27.1
31	9 46 27.15	-0.609	+16 53 51.8	-3.53	9 12.2	31	9 59 56.50	+2.499	+14 28 17.7	-18.63	7 24.2
32	9 46 14.03	-0.485	+16 52 19.6	-4.15	9 8.1	32	10 0 57.33	+2.570	+14 20 46.2	-19.00	7 21.3

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.
Semidiameter . .	7.39	7.27	7.11	6.92	6.69	6.45	Semidiameter . .	6.20	5.95	5.71	5.48	5.25	5.04
Hor. Parallax . .	12.87	12.67	12.39	12.04	11.65	11.23	Hor. Parallax . .	10.79	10.35	9.94	9.53	9.14	8.78

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign — indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.							JUNE.						
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.		
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.			
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m		
1	9 59 56.50	+2.499	+14 28 17.7	-18.63	7 24.2	1	10 41 50.25	+4.071	+9 33 58.8	-28.24	6 4.2		
2	10 0 57.33	2.570	14 20 46.2	19.00	7 21.3	2	10 43 28.34	4.105	9 22 37.8	28.49	6 1.9		
3	10 1 59.82	2.639	14 13 5.9	19.36	7 18.4	3	10 45 7.24	4.138	9 11 10.9	28.74	5 59.6		
4	10 3 3.94	2.706	14 5 17.0	19.72	7 15.5	4	10 46 46.92	4.170	8 59 38.0	28.99	5 57.3		
5	10 4 9.64	2.771	13 57 19.5	20.07	7 12.7	5	10 48 27.37	4.201	8 47 59.2	29.24	5 55.0		
6	10 5 16.89	+2.834	+13 49 13.6	-20.42	7 9.9	6	10 50 8.57	+4.232	+8 36 14.7	-29.48	5 52.8		
7	10 6 25.66	2.896	13 40 59.4	20.77	7 7.1	7	10 51 50.52	4.263	8 24 24.4	29.72	5 50.5		
8	10 7 35.90	2.957	13 32 36.9	21.11	7 4.3	8	10 53 33.21	4.293	8 12 28.5	29.96	5 48.3		
9	10 8 47.59	3.017	13 24 6.3	21.45	7 1.6	9	10 55 16.62	4.323	8 0 26.8	30.19	5 46.1		
10	10 10 0.69	3.075	13 15 27.6	21.78	6 58.9	10	10 57 0.73	4.353	7 48 19.6	30.42	5 43.9		
11	10 11 15.18	+3.132	+13 6 40.9	-22.11	6 56.2	11	10 58 45.54	+4.382	+7 36 6.9	-30.65	5 41.7		
12	10 12 31.02	3.188	12 57 46.3	22.44	6 53.5	12	11 0 31.05	4.411	7 23 48.8	30.87	5 39.5		
13	10 13 48.19	3.243	12 48 43.8	22.77	6 50.8	13	11 2 17.24	4.439	7 11 25.3	31.09	5 37.4		
14	10 15 6.65	3.296	12 39 33.5	23.09	6 48.2	14	11 4 4.10	4.467	6 58 56.4	31.31	5 35.2		
15	10 16 26.37	3.348	12 30 15.5	23.41	6 45.6	15	11 5 51.63	4.494	6 46 22.3	31.53	5 33.1		
16	10 17 47.35	+3.399	+12 20 49.9	-23.72	6 43.0	16	11 7 39.81	+4.521	+6 33 43.0	-31.74	5 30.9		
17	10 19 9.54	3.449	12 11 16.7	24.03	6 40.5	17	11 9 28.63	4.547	6 20 58.7	31.95	5 28.8		
18	10 20 32.93	3.498	12 1 36.1	24.34	6 37.9	18	11 11 18.09	4.573	6 8 9.4	32.16	5 26.7		
19	10 21 57.47	3.547	11 51 48.1	24.65	6 35.4	19	11 13 8.17	4.599	5 55 15.1	32.36	5 24.6		
20	10 23 23.16	3.594	11 41 52.8	24.95	6 32.9	20	11 14 58.85	4.625	5 42 16.1	32.56	5 22.5		
21	10 24 49.95	+3.639	+11 31 50.4	-25.25	6 30.4	21	11 16 50.14	+4.650	+5 29 12.3	-32.75	5 20.4		
22	10 26 17.83	3.684	11 21 40.8	25.54	6 27.9	22	11 18 42.01	4.674	5 16 4.1	32.93	5 18.3		
23	10 27 46.76	3.728	11 11 24.3	25.83	6 25.5	23	11 20 34.46	4.698	5 2 51.2	33.11	5 16.3		
24	10 29 16.72	3.770	11 1 1.0	26.11	6 23.1	24	11 22 27.48	4.721	4 49 34.0	33.29	5 14.2		
25	10 30 47.67	3.811	10 50 31.0	26.39	6 20.7	25	11 24 21.06	4.744	4 36 12.5	33.46	5 12.2		
26	10 32 19.59	+3.850	+10 39 54.3	-26.67	6 18.3	26	11 26 15.18	+4.766	+4 22 46.7	-33.64	5 10.2		
27	10 33 52.46	3.889	10 29 10.9	26.94	6 15.9	27	11 28 9.84	4.788	4 9 16.8	33.81	5 8.1		
28	10 35 26.25	3.927	10 18 21.1	27.21	6 13.5	28	11 30 5.03	4.810	3 55 42.8	33.98	5 6.1		
29	10 37 0.95	3.964	10 7 24.9	27.47	6 11.1	29	11 32 0.75	4.832	3 42 4.8	34.15	5 4.1		
30	10 38 36.53	4.000	9 56 22.4	27.73	6 8.8	30	11 33 57.00	4.854	3 28 22.9	34.32	5 2.1		
31	10 40 12.97	+4.036	+9 45 13.7	-27.99	6 6.5	31	11 35 53.76	+4.876	+3 14 37.3	-34.48	5 0.1		
32	10 41 50.25	+4.071	+9 33 58.8	-28.24	6 4.2	32	11 37 51.03	+4.897	+3 0 47.9	-34.64	4 58.1		

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.	Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
	"	"	"	"	"	"	"		"	"	"	"	"	"
Semidiameter .	4.84	4.66	4.49	4.33	4.18	4.04	3.91	Semidiameter .	3.79	3.68	3.58	3.49	3.40	3.32
Hor. Parallax .	8.43	8.12	7.82	7.54	7.28	7.04	6.81	Hor. Parallax .	6.60	6.41	6.24	6.08	5.93	5.78

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

JULY.						AUGUST.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	11 35 53.76	+4.876	+3 14 37.3	-34.48	5 0.1	1	12 40 20.47	+5.513	-4 15 52.9	-37.52	4 2.4
2	11 37 51.03	4.897	3 0 47.9	34.64	4 58.1	2	12 42 33.04	5.534	4 30 53.9	37.55	4 0.7
3	11 39 48.80	4.918	2 46 54.8	34.79	4 56.1	3	12 44 46.09	5.555	4 45 55.6	37.58	3 59.0
4	11 41 47.08	4.939	2 32 58.2	34.93	4 54.2	4	12 46 59.66	5.576	5 0 57.9	37.61	3 57.3
5	11 43 45.86	4.960	2 18 58.1	35.07	4 52.2	5	12 49 13.72	5.597	5 16 0.7	37.63	3 55.6
6	11 45 45.14	+4.981	+2 4 54.6	-35.21	4 50.2	6	12 51 28.30	+5.618	-5 31 3.9	-37.65	3 53.9
7	11 47 44.92	5.002	1 50 47.7	35.35	4 48.2	7	12 53 43.41	5.640	5 46 7.4	37.66	3 52.2
8	11 49 45.20	5.023	1 36 37.5	35.49	4 46.3	8	12 55 59.05	5.662	6 1 11.0	37.66	3 50.5
9	11 51 45.98	5.044	1 22 24.2	35.62	4 44.4	9	12 58 15.21	5.684	6 16 14.7	37.65	3 48.8
10	11 53 47.26	5.064	1 8 7.7	35.75	4 42.5	10	13 0 31.90	5.706	6 31 18.3	37.64	3 47.1
11	11 55 49.04	+5.085	+0 53 48.1	-35.87	4 40.6	11	13 2 49.13	+5.728	-6 46 21.7	-37.63	3 45.5
12	11 57 51.33	5.106	0 39 25.6	35.99	4 38.7	12	13 5 6.90	5.751	7 1 24.9	37.62	3 43.8
13	11 59 54.12	5.127	0 25 0.1	36.11	4 36.8	13	13 7 25.22	5.774	7 16 27.7	37.60	3 42.2
14	12 1 57.41	5.148	+0 10 31.9	36.23	4 34.9	14	13 9 44.09	5.797	7 31 29.9	37.58	3 40.6
15	12 4 1.20	5.168	-0 3 59.0	36.34	4 33.1	15	13 12 3.50	5.820	7 46 31.4	37.55	3 39.0
16	12 6 5.49	+5.189	-0 18 32.5	-36.45	4 31.2	16	13 14 23.47	+5.843	-8 1 32.1	-37.51	3 37.4
17	12 8 10.28	5.209	0 33 8.5	36.55	4 29.3	17	13 16 43.99	5.866	8 16 31.9	37.47	3 35.8
18	12 10 15.56	5.230	0 47 46.8	36.65	4 27.4	18	13 19 5.07	5.889	8 31 30.7	37.42	3 34.2
19	12 12 21.33	5.250	1 2 27.5	36.74	4 25.6	19	13 21 26.71	5.913	8 46 28.2	37.36	3 32.6
20	12 14 27.59	5.271	1 17 10.3	36.83	4 23.8	20	13 23 48.91	5.936	9 1 24.2	37.30	3 31.1
21	12 16 34.34	+5.291	-1 31 55.2	-36.91	4 22.0	21	13 26 11.67	+5.960	-9 16 18.7	-37.23	3 29.5
22	12 18 41.57	5.311	1 46 42.0	36.99	4 20.2	22	13 28 35.00	5.983	9 31 11.6	37.16	3 27.9
23	12 20 49.29	5.331	2 1 30.6	37.06	4 18.4	23	13 30 58.89	6.007	9 46 2.8	37.09	3 26.4
24	12 22 57.49	5.351	2 16 20.9	37.13	4 16.6	24	13 33 23.36	6.031	10 0 52.0	37.01	3 24.9
25	12 25 6.17	5.372	2 31 12.9	37.20	4 14.8	25	13 35 48.40	6.055	10 15 39.2	36.92	3 23.4
26	12 27 15.33	+5.392	-2 46 6.4	-37.26	4 13.0	26	13 38 14.02	+6.079	-10 30 24.2	-36.82	3 21.9
27	12 29 24.98	5.412	3 1 1.3	37.32	4 11.2	27	13 40 40.22	6.103	10 45 6.8	36.72	3 20.4
28	12 31 35.11	5.432	3 15 57.4	37.37	4 9.4	28	13 43 7.00	6.128	10 59 46.9	36.61	3 18.9
29	12 33 45.72	5.452	3 30 54.8	37.41	4 7.6	29	13 45 34.37	6.153	11 14 24.4	36.50	3 17.4
30	12 35 56.82	5.472	3 45 53.2	37.45	4 5.9	30	13 48 2.35	6.178	11 28 59.1	36.38	3 15.9
31	12 38 8.40	+5.493	-4 0 52.6	-37.49	4 4.1	31	13 50 30.92	+6.203	-11 43 31.0	-36.26	3 14.4
32	12 40 20.47	+5.513	-4 15 52.9	-37.52	4 2.4	32	13 53 0.09	+6.228	-11 57 59.8	-36.13	3 12.9
Day of the Month.						Day of the Month.					
5th. 10th. 15th. 20th. 25th. 30th.						4th. 9th. 14th. 19th. 24th. 29th.					
Semidiameter . . 3.24 3.17 3.10 3.04 2.98 2.93						Semidiameter . . 2.88 2.83 2.78 2.74 2.70 2.67					
Hor. Parallax . . 5.64 5.52 5.40 5.29 5.19 5.10						Hor. Parallax . . 5.01 4.93 4.85 4.78 4.71 4.64					

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.							OCTOBER.																
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.												
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.													
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m												
1	13 53 0.09	+6.228	11 57 59.8	-36.13	3 12.9	1	15 12 41.61	+7.069	18 36 3.5	-29.15	2 34.5												
2	13 55 29.87	6.254	12 12 25.4	36.00	3 11.5	2	15 15 31.63	7.099	18 47 38.9	28.80	2 33.4												
3	13 58 0.29	6.280	12 26 47.7	35.86	3 10.1	3	15 18 22.36	7.129	18 59 5.9	28.45	2 32.3												
4	14 0 31.33	6.307	12 41 6.6	35.71	3 8.7	4	15 21 13.81	7.159	19 10 24.3	28.09	2 31.2												
5	14 3 3.00	6.334	12 55 21.9	35.56	3 7.3	5	15 24 5.97	7.188	19 21 34.1	27.72	2 30.1												
6	14 5 35.32	+6.361	13 9 33.4	-35.40	3 5.9	6	15 26 58.85	+7.218	19 32 35.0	-27.34	2 29.0												
7	14 8 8.29	6.388	13 23 41.1	35.23	3 4.5	7	15 29 52.46	7.248	19 43 26.7	26.96	2 28.0												
8	14 10 41.91	6.415	13 37 44.7	35.06	3 3.1	8	15 32 46.78	7.278	19 54 9.2	26.57	2 27.0												
9	14 13 16.19	6.442	13 51 44.1	34.88	3 1.7	9	15 35 41.82	7.308	20 4 42.2	26.17	2 26.0												
10	14 15 51.13	6.469	14 5 39.1	34.70	3 0.3	10	15 38 37.57	7.338	20 15 5.6	25.76	2 25.0												
11	14 18 26.74	+6.497	14 19 29.6	-34.51	2 59.0	11	15 41 34.03	+7.367	20 25 19.2	-25.35	2 24.0												
12	14 21 3.01	6.525	14 33 15.4	34.31	2 57.7	12	15 44 31.20	7.397	20 35 22.7	24.93	2 23.0												
13	14 23 39.95	6.553	14 46 56.4	34.10	2 56.4	13	15 47 29.07	7.426	20 45 16.0	24.51	2 22.0												
14	14 26 17.57	6.581	15 0 32.3	33.88	2 55.1	14	15 50 27.65	7.455	20 54 59.0	24.08	2 21.0												
15	14 28 55.86	6.609	15 14 3.0	33.66	2 53.8	15	15 53 26.92	7.484	21 4 31.3	23.64	2 20.0												
16	14 31 34.83	+6.637	15 27 28.3	-33.43	2 52.5	16	15 56 26.88	+7.513	21 13 52.9	-23.19	2 19.1												
17	14 34 14.48	6.666	15 40 48.1	33.20	2 51.2	17	15 59 27.52	7.541	21 23 3.6	22.73	2 18.2												
18	14 36 54.81	6.695	15 54 2.1	32.96	2 49.9	18	16 2 28.84	7.569	21 32 3.1	22.25	2 17.3												
19	14 39 35.82	6.723	16 7 10.3	32.71	2 48.6	19	16 5 30.83	7.597	21 40 51.4	21.77	2 16.4												
20	14 42 17.51	6.752	16 20 12.4	32.45	2 47.3	20	16 8 33.49	7.624	21 49 28.1	21.28	2 15.5												
21	14 44 59.88	+6.780	16 33 8.2	-32.19	2 46.1	21	16 11 36.80	+7.651	21 57 53.2	-20.79	2 14.6												
22	14 47 42.94	6.809	16 45 57.6	31.92	2 44.9	22	16 14 40.77	7.678	22 6 6.4	20.30	2 13.7												
23	14 50 26.69	6.838	16 58 40.4	31.64	2 43.7	23	16 17 45.38	7.705	22 14 7.6	19.80	2 12.0												
24	14 53 11.13	6.866	17 11 16.4	31.35	2 42.5	24	16 20 50.63	7.731	22 21 56.6	19.29	2 11.2												
25	14 55 56.26	6.895	17 23 45.4	31.06	2 41.3	25	16 23 56.50	7.757	22 29 33.2	18.77	2 11.2												
26	14 58 42.07	+6.923	17 36 7.3	-30.76	2 40.1	26	16 27 3.00	+7.783	22 36 57.3	-18.24	2 10.3												
27	15 1 28.58	6.952	17 48 21.8	30.45	2 39.0	27	16 30 10.11	7.809	22 44 8.7	17.71	2 9.5												
28	15 4 15.78	6.981	18 0 28.9	30.14	2 37.9	28	16 33 17.83	7.834	22 51 7.2	17.17	2 8.7												
29	15 7 3.68	7.010	18 12 28.3	29.82	2 36.7	29	16 36 26.16	7.859	22 57 52.6	16.62	2 7.9												
30	15 9 52.29	7.039	18 24 19.9	29.49	2 35.6	30	16 39 35.08	7.884	23 4 24.8	16.07	2 7.1												
31	15 12 41.61	+7.069	18 36 3.5	-29.15	2 34.5	31	16 42 44.59	+7.908	23 10 43.7	-15.51	2 6.3												
32	15 15 31.63	+7.099	18 47 38.9	-28.80	2 33.4	32	16 45 54.69	+7.932	23 16 49.1	-14.94	2 5.5												
Day of the Month.						3d.	8th.	13th.	18th.	23d.	28th.	Day of the Month.						3d.	8th.	13th.	18th.	23d.	28th.
Semidiameter .						2.63	2.60	2.57	2.55	2.52	2.50	Semidiameter .						2.47	2.45	2.43	2.41	2.39	2.37
Hor. Parallax .						4.58	4.54	4.49	4.44	4.39	4.35	Hor. Parallax .						4.31	4.27	4.23	4.20	4.17	4.14

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	" ' "	"	h m		h m s	s	" ' "	"	h m
1	16 45 54.69	+7.932	23 16 49.1	-14.94	2 5.5	1	18 24 26.16	+8.390	24 24 4.9	+4.33	1 45.8
2	16 49 5.36	7.956	23 22 40.9	14.37	2 4.8	2	18 27 47.61	8.396	24 22 12.7	5.02	1 45.2
3	16 52 16.60	7.979	23 28 18.8	13.79	2 4.0	3	18 31 9.17	8.401	24 20 4.0	5.70	1 44.7
4	16 55 28.40	8.002	23 33 42.8	13.20	2 3.3	4	18 34 30.83	8.405	24 17 38.8	6.39	1 44.1
5	16 58 40.74	8.025	23 38 52.6	12.61	2 2.5	5	18 37 52.57	8.408	24 14 57.0	7.08	1 43.5
6	17 1 53.62	+8.047	23 43 48.2	-12.01	2 1.8	6	18 41 14.38	+8.410	24 11 58.7	+7.77	1 42.9
7	17 5 7.03	8.069	23 48 29.4	11.41	2 1.1	7	18 44 36.23	8.411	24 8 43.9	8.46	1 42.3
8	17 8 20.95	8.090	23 52 56.1	10.80	2 0.4	8	18 47 58.11	8.411	24 5 12.6	9.15	1 41.8
9	17 11 35.36	8.110	23 57 8.1	10.19	1 59.7	9	18 51 20.00	8.411	24 1 24.7	9.84	1 41.2
10	17 14 50.26	8.130	24 1 5.3	9.57	1 59.0	10	18 54 41.88	8.410	23 57 20.4	10.53	1 40.6
11	17 18 5.62	+8.149	24 4 47.5	-8.95	1 58.3	11	18 58 3.74	+8.409	23 52 59.7	+11.21	1 40.0
12	17 21 21.44	8.168	24 8 14.7	8.32	1 57.6	12	19 1 25.55	8.407	23 48 22.6	11.89	1 39.4
13	17 24 37.70	8.186	24 11 26.8	7.68	1 56.9	13	19 4 47.30	8.404	23 43 29.1	12.57	1 38.9
14	17 27 54.38	8.203	24 14 23.5	7.04	1 56.2	14	19 8 8.97	8.401	23 38 19.3	13.25	1 38.3
15	17 31 11.46	8.220	24 17 4.9	6.40	1 55.6	15	19 11 30.55	8.397	23 32 53.3	13.92	1 37.7
16	17 34 28.93	+8.236	24 19 30.8	-5.75	1 55.0	16	19 14 52.01	+8.392	23 27 11.1	+14.59	1 37.1
17	17 37 46.78	8.251	24 21 41.2	5.10	1 54.3	17	19 18 13.34	8.386	23 21 12.9	15.26	1 36.5
18	17 41 4.98	8.265	24 23 35.8	4.44	1 53.6	18	19 21 34.52	8.379	23 14 58.6	15.92	1 35.9
19	17 44 23.51	8.279	24 25 14.7	3.78	1 53.0	19	19 24 55.53	8.372	23 8 28.3	16.58	1 35.3
20	17 47 42.36	8.292	24 26 37.7	3.12	1 52.4	20	19 28 16.36	8.364	23 1 42.2	17.24	1 34.7
21	17 51 1.51	+8.304	24 27 44.8	-2.46	1 51.8	21	19 31 36.99	+8.355	22 54 40.2	+17.90	1 34.1
22	17 54 20.95	8.316	24 28 35.9	1.79	1 51.2	22	19 34 57.41	8.346	22 47 22.5	18.56	1 33.5
23	17 57 40.66	8.327	24 29 10.9	1.12	1 50.6	23	19 38 17.60	8.336	22 39 49.1	19.21	1 32.9
24	18 1 0.62	8.337	24 29 29.8	-0.45	1 50.0	24	19 41 37.56	8.326	22 32 0.3	19.86	1 32.3
25	18 4 20.82	8.347	24 29 32.4	+0.23	1 49.4	25	19 44 57.27	8.316	22 23 56.0	20.50	1 31.7
26	18 7 41.24	+8.356	24 29 18.8	+0.91	1 48.8	26	19 48 16.72	+8.305	22 15 36.4	+21.13	1 31.1
27	18 11 1.87	8.364	24 28 48.8	1.59	1 48.2	27	19 51 35.91	8.294	22 7 1.6	21.76	1 30.5
28	18 14 22.69	8.371	24 28 2.5	2.27	1 47.6	28	19 54 54.82	8.282	21 58 11.7	22.38	1 29.9
29	18 17 43.69	8.378	24 26 59.8	2.95	1 47.0	29	19 58 13.44	8.270	21 49 6.8	23.00	1 29.2
30	18 21 4.85	8.384	24 25 40.6	3.64	1 46.4	30	20 1 31.76	8.257	21 39 47.1	23.62	1 28.6
31	18 24 26.16	+8.390	24 24 4.9	+4.33	1 45.8	31	20 4 49.78	+8.244	21 30 12.6	+24.24	1 27.9
32	18 27 47.61	+8.396	24 22 12.7	+5.02	1 45.2	32	20 8 7.48	+8.231	21 20 23.5	+24.85	1 27.3
Day of the Month.						Day of the Month.					
2d. 7th. 12th. 17th. 22d. 27th.						2d. 7th. 12th. 17th. 22d. 27th. 32d.					
Semidiameter						Semidiameter					
Hor. Parallax						Hor. Parallax					

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign — indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.											
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.						
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.							
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m						
1	17 42 54.77	+2.441	—23 5 10.2	—1.20	22 58.4	1	18 11 54.22	+2.190	—23 9 13.6	+0.46	21 25.2						
2	17 43 53.30	2.437	23 5 38.2	1.14	22 55.4	2	18 12 46.63	2.178	23 9 2.2	0.50	21 22.2						
3	17 44 51.72	2.432	23 6 4.8	1.08	22 52.4	3	18 13 38.74	2.165	23 8 49.8	0.54	21 19.1						
4	17 45 50.03	2.427	23 6 29.9	1.02	22 49.4	4	18 14 30.53	2.152	23 8 36.4	0.58	21 16.0						
5	17 46 48.23	2.422	23 6 53.6	0.96	22 46.5	5	18 15 22.01	2.139	23 8 22.1	0.62	21 12.9						
6	17 47 46.32	+2.417	—23 7 15.9	—0.90	22 43.5	6	18 16 13.18	+2.125	—23 8 6.8	+0.66	21 9.8						
7	17 48 44.28	2.412	23 7 36.8	0.84	22 40.5	7	18 17 4.01	2.111	23 7 50.6	0.70	21 6.7						
8	17 49 42.12	2.407	23 7 56.3	0.78	22 37.5	8	18 17 54.50	2.097	23 7 33.5	0.74	21 3.6						
9	17 50 39.83	2.401	23 8 14.4	0.72	22 34.6	9	18 18 44.65	2.083	23 7 15.5	0.77	21 0.5						
10	17 51 37.40	2.395	23 8 31.1	0.67	22 31.6	10	18 19 34.47	2.068	23 6 56.7	0.81	20 57.4						
11	17 52 34.81	+2.389	—23 8 46.4	—0.61	22 28.6	11	18 20 23.92	+2.053	—23 6 37.0	+0.84	20 54.3						
12	17 53 32.07	2.383	23 9 0.4	0.55	22 25.6	12	18 21 13.00	2.037	23 6 16.5	0.87	20 51.2						
13	17 54 29.18	2.376	23 9 13.0	0.50	22 22.6	13	18 22 1.71	2.022	23 5 55.3	0.90	20 48.0						
14	17 55 26.12	2.369	23 9 24.3	0.44	22 19.6	14	18 22 50.04	2.006	23 5 33.3	0.93	20 44.9						
15	17 56 22.88	2.362	23 9 34.2	0.38	22 16.6	15	18 23 37.99	1.990	23 5 10.6	0.96	20 41.7						
16	17 57 19.46	+2.354	—23 9 42.8	—0.33	22 13.6	16	18 24 25.54	+1.973	—23 4 47.3	+0.99	20 38.6						
17	17 58 15.86	2.346	23 9 50.1	0.27	22 10.6	17	18 25 12.69	1.956	23 4 23.3	1.02	20 35.4						
18	17 59 12.06	2.338	23 9 56.1	0.22	22 7.6	18	18 25 59.40	1.938	23 3 58.7	1.04	20 32.3						
19	18 0 8.05	2.329	23 10 0.8	0.17	22 4.6	19	18 26 45.72	1.920	23 3 33.4	1.07	20 29.1						
20	18 1 3.83	2.320	23 10 4.3	0.12	22 1.6	20	18 27 31.60	1.902	23 3 7.6	1.09	20 25.9						
21	18 1 59.41	+2.311	—23 10 6.5	—0.07	21 58.6	21	18 28 17.04	+1.884	—23 2 41.2	+1.11	20 22.7						
22	18 2 54.76	2.301	23 10 7.5	—0.02	21 55.6	22	18 29 2.05	1.866	23 2 14.3	1.13	20 19.5						
23	18 3 49.87	2.291	23 10 7.3	+0.03	21 52.6	23	18 29 46.61	1.847	23 1 46.9	1.15	20 16.3						
24	18 4 44.73	2.281	23 10 5.9	0.08	21 49.5	24	18 30 30.71	1.828	23 1 19.1	1.17	20 13.1						
25	18 5 39.35	2.271	23 10 3.3	0.13	21 46.5	25	18 31 14.35	1.809	23 0 50.9	1.19	20 9.9						
26	18 6 33.72	+2.260	—23 9 59.5	+0.18	21 43.5	26	18 31 57.52	+1.789	—23 0 22.3	+1.20	20 6.7						
27	18 7 27.82	2.249	23 9 54.6	0.23	21 40.5	27	18 32 40.22	1.769	22 59 53.3	1.21	20 3.5						
28	18 8 21.65	2.237	23 9 48.6	0.27	21 37.4	28	18 33 22.43	1.749	22 59 24.0	1.23	20 0.3						
29	18 9 15.22	2.226	23 9 41.5	0.32	21 34.4	29	18 34 4.15	1.729	22 58 54.4	1.24	19 57.0						
30	18 10 8.52	2.214	23 9 33.2	0.37	21 31.3	30	18 34 45.39	1.708	22 58 24.4	1.25	19 53.8						
31	18 11 1.52	+2.202	—23 9 23.9	+0.41	21 28.3	31	18 35 26.11	+1.687	—22 57 54.2	+1.26	19 50.5						
32	18 11 54.22	+2.190	—23 9 13.6	+0.46	21 25.2	32	18 36 6.33	+1.666	—22 57 23.8	+1.27	19 47.2						
Day of the Month.					1st.	9th.	17th.	25th.	Day of the Month.					2d.	10th.	18th.	26th.
Semidiameter					"	"	"	"	Semidiameter					"	"	"	"
Horizontal Parallax					15.14	15.23	15.37	15.53	Horizontal Parallax					15.74	15.98	16.26	16.57
					1.41	1.42	1.44	1.46						1.47	1.49	1.52	1.55

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s.	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	18 34 4.15	+1.729	22 58 54.4	+1.24	19 57.0	1	18 50 57.76	+0.950	22 43 54.1	+0.97	18 11.6
2	18 34 45.39	1.708	22 58 24.4	1.25	19 53.8	2	18 51 20.19	0.921	22 43 31.2	0.94	18 8.1
3	18 35 26.11	1.687	22 57 54.2	1.26	19 50.5	3	18 51 41.91	0.891	22 43 9.0	0.91	18 4.5
4	18 36 6.33	1.666	22 57 23.8	1.27	19 47.2	4	18 52 2.93	0.861	22 42 47.5	0.88	18 0.9
5	18 36 46.05	1.645	22 56 53.2	1.28	19 43.9	5	18 52 23.22	0.831	22 42 26.8	0.85	17 57.3
6	18 37 25.27	+1.623	22 56 22.5	+1.28	19 40.6	6	18 52 42.78	+0.801	22 42 6.9	+0.82	17 53.7
7	18 38 3.94	1.601	22 55 51.6	1.29	19 37.3	7	18 53 1.62	0.770	22 41 47.7	0.78	17 50.1
8	18 38 42.07	1.578	22 55 20.6	1.29	19 34.0	8	18 53 19.72	0.739	22 41 29.4	0.75	17 46.4
9	18 39 19.65	1.555	22 54 49.6	1.29	19 30.7	9	18 53 37.07	0.708	22 41 12.0	0.71	17 42.8
10	18 39 56.69	1.532	22 54 18.5	1.29	19 27.4	10	18 53 53.67	0.676	22 40 55.5	0.67	17 39.1
11	18 40 33.19	+1.509	22 53 47.4	+1.29	19 24.1	11	18 54 9.53	+0.645	22 40 39.8	+0.63	17 35.4
12	18 41 9.11	1.485	22 53 16.4	1.28	19 20.7	12	18 54 24.62	0.613	22 40 25.1	0.59	17 31.7
13	18 41 44.46	1.461	22 52 45.5	1.28	19 17.3	13	18 54 38.94	0.581	22 40 11.4	0.55	17 28.0
14	18 42 19.24	1.437	22 52 14.6	1.28	19 14.0	14	18 54 52.49	0.549	22 39 58.6	0.51	17 24.3
15	18 42 53.43	1.412	22 51 43.9	1.27	19 10.6	15	18 55 5.26	0.516	22 39 46.8	0.47	17 20.6
16	18 43 27.02	+1.387	22 51 13.4	+1.27	19 7.2	16	18 55 17.25	+0.483	22 39 36.0	+0.43	17 16.8
17	18 44 0.01	1.362	22 50 43.1	1.26	19 3.8	17	18 55 28.45	0.450	22 39 26.3	0.39	17 13.1
18	18 44 32.39	1.336	22 50 13.0	1.25	19 0.4	18	18 55 38.86	0.417	22 39 17.6	0.34	17 9.3
19	18 45 4.15	1.310	22 49 43.2	1.24	18 57.0	19	18 55 48.47	0.384	22 39 10.0	0.29	17 5.5
20	18 45 35.28	1.284	22 49 13.7	1.22	18 53.6	20	18 55 57.28	0.351	22 39 3.5	0.25	17 1.7
21	18 46 5.78	+1.258	22 48 44.5	+1.21	18 50.2	21	18 56 5.29	+0.318	22 38 58.1	+0.21	16 57.9
22	18 46 35.65	1.231	22 48 15.6	1.20	18 46.8	22	18 56 12.50	0.284	22 38 53.8	0.16	16 54.1
23	18 47 4.87	1.204	22 47 47.2	1.18	18 43.3	23	18 56 18.92	0.250	22 38 50.5	0.12	16 50.3
24	18 47 33.43	1.177	22 47 19.2	1.16	18 39.8	24	18 56 24.51	0.216	22 38 48.4	0.07	16 46.4
25	18 48 1.33	1.149	22 46 51.7	1.14	18 36.3	25	18 56 29.30	0.183	22 38 47.4	+0.02	16 42.5
26	18 48 28.57	+1.121	22 46 24.6	+1.12	18 32.8	26	18 56 33.28	+0.149	22 38 47.5	-0.03	16 38.7
27	18 48 55.14	1.093	22 45 58.0	1.10	18 29.3	27	18 56 36.45	0.115	22 38 48.8	0.08	16 34.8
28	18 49 21.03	1.065	22 45 32.0	1.08	18 25.8	28	18 56 38.81	0.081	22 38 51.3	0.13	16 30.9
29	18 49 46.24	1.037	22 45 6.6	1.05	18 22.3	29	18 56 40.36	0.047	22 38 54.9	0.18	16 27.0
30	18 50 10.78	1.008	22 44 41.8	1.03	18 18.8	30	18 56 41.11	+0.013	22 38 59.5	0.23	16 23.1
31	18 50 34.62	+0.979	22 44 17.6	+1.00	18 15.2	31	18 56 41.05	-0.020	22 39 5.2	-0.27	16 19.1
32	18 50 57.76	+0.950	22 43 54.1	+0.97	18 11.6	32	18 56 40.17	-0.054	22 39 12.1	-0.32	16 15.2
Day of the Month.						Day of the Month.					
6th.						7th.					
14th.						15th.					
22d.						23d.					
30th.											
Semidiameter						Semidiameter					
Horizontal Parallax						Horizontal Parallax					
16.91						18.60					
1.58						1.74					
17.29						19.07					
1.62						1.79					
17.70						18.83					
1.65											

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.						JUNE.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"			h m s	s	° ' "	"	
1	18 56 41.05	−0.020	−22 39 5.2	−0.27	16 19.1	1	18 50 10.50	−0.985	−22 50 49.5	−1.49	14 10.5
2	18 56 40.17	0.054	22 39 12.1	0.32	16 15.2	2	18 49 46.55	1.010	22 51 25.7	1.51	14 6.2
3	18 56 38.48	0.088	22 39 20.2	0.37	16 11.2	3	18 49 22.01	1.035	22 52 2.3	1.53	14 1.8
4	18 56 35.99	0.121	22 39 29.5	0.41	16 7.2	4	18 48 56.89	1.059	22 52 39.3	1.55	13 57.5
5	18 56 32.69	0.155	22 39 40.0	0.46	16 3.2	5	18 48 31.22	1.082	22 53 16.8	1.57	13 53.1
6	18 56 28.58	−0.189	−22 39 51.6	−0.51	15 59.2	6	18 48 5.01	−1.103	−22 53 54.8	−1.59	13 48.7
7	18 56 23.66	0.222	22 40 4.3	0.55	15 55.2	7	18 47 38.27	1.125	22 54 33.1	1.61	13 44.3
8	18 56 17.93	0.256	22 40 18.1	0.60	15 51.2	8	18 47 11.00	1.146	22 55 11.8	1.62	13 40.0
9	18 56 11.39	0.289	22 40 33.0	0.65	15 47.1	9	18 46 43.24	1.167	22 55 50.8	1.63	13 35.6
10	18 56 4.05	0.322	22 40 49.1	0.69	15 43.1	10	18 46 15.00	1.186	22 56 30.1	1.64	13 31.2
11	18 55 55.91	−0.356	−22 41 6.3	−0.74	15 39.0	11	18 45 46.29	−1.205	−22 57 9.6	−1.65	13 26.8
12	18 55 46.98	0.389	22 41 24.6	0.79	15 34.9	12	18 45 17.14	1.223	22 57 49.3	1.66	13 22.3
13	18 55 37.25	0.422	22 41 43.9	0.83	15 30.8	13	18 44 47.57	1.240	22 58 29.2	1.66	13 17.9
14	18 55 26.72	0.455	22 42 4.5	0.88	15 26.7	14	18 44 17.61	1.256	22 59 9.2	1.67	13 13.5
15	18 55 15.41	0.488	22 42 26.0	0.92	15 22.5	15	18 43 47.25	1.272	22 59 49.3	1.67	13 9.0
16	18 55 3.32	−0.520	−22 42 48.5	−0.96	15 18.4	16	18 43 16.53	−1.286	−23 0 29.4	−1.67	13 4.6
17	18 54 50.44	0.552	22 43 12.0	1.00	15 14.2	17	18 42 45.48	1.300	23 1 9.5	1.67	13 0.1
18	18 54 36.78	0.584	22 43 36.5	1.04	15 10.1	18	18 42 14.11	1.313	23 1 49.6	1.67	12 55.7
19	18 54 22.37	0.616	22 44 2.0	1.08	15 5.9	19	18 41 42.45	1.325	23 2 29.6	1.66	12 51.2
20	18 54 7.21	0.647	22 44 28.5	1.12	15 1.7	20	18 41 10.52	1.336	23 3 9.5	1.66	12 46.8
21	18 53 51.31	−0.677	−22 44 56.0	−1.16	14 57.5	21	18 40 38.34	−1.346	−23 3 49.2	−1.66	12 42.3
22	18 53 34.68	0.707	22 45 24.3	1.20	14 53.3	22	18 40 5.93	1.355	23 4 28.7	1.65	12 37.8
23	18 53 17.34	0.737	22 45 53.4	1.24	14 49.1	23	18 39 33.32	1.363	23 5 8.1	1.64	12 33.4
24	18 52 59.29	0.767	22 46 23.4	1.27	14 44.8	24	18 39 0.54	1.369	23 5 47.2	1.62	12 28.9
25	18 52 40.53	0.796	22 46 54.2	1.30	14 40.5	25	18 38 27.61	1.375	23 6 26.0	1.61	12 24.4
26	18 52 21.07	−0.825	−22 47 25.8	−1.33	14 36.3	26	18 37 54.55	−1.380	−23 7 4.6	−1.60	12 19.9
27	18 52 0.94	0.853	22 47 58.1	1.36	14 32.0	27	18 37 21.38	1.384	23 7 42.8	1.58	12 15.4
28	18 51 40.14	0.881	22 48 31.1	1.39	14 27.7	28	18 36 48.13	1.387	23 8 20.6	1.57	12 11.0
29	18 51 18.67	0.908	22 49 4.8	1.42	14 23.4	29	18 36 14.82	1.389	23 8 58.1	1.56	12 6.5
30	18 50 56.56	0.934	22 49 39.1	1.45	14 19.1	30	18 35 41.48	1.390	23 9 35.3	1.54	12 2.1
31	18 50 33.84	−0.960	−22 50 14.0	−1.47	14 14.8	31	18 35 8.12	−1.390	−23 10 11.9	−1.52	11 57.5
32	18 50 10.50	−0.985	−22 50 49.5	−1.49	14 10.5	32	18 34 34.77	−1.389	−23 10 48.2	−1.50	11 53.0
Day of the Month.						Day of the Month.					
1st.						2d.					
9th.						10th.					
17th.						18th.					
25th.						26th.					
Semidiameter						Semidiameter					
Horizontal Parallax						Horizontal Parallax					
20.06						21.80					
1.88						2.04					
20.55						22.10					
1.93						2.07					
21.01						22.31					
1.97						2.09					
21.43						22.43					
2.01						2.10					

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

JULY.						AUGUST.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	18 35 8.12	-1.390	23 10 11.9	-1.52	11 57.5	1	18 19 49.58	-0.941	23 24 33.8	-0.78	9 40.5
2	18 34 34.77	1.389	23 10 48.2	1.50	11 53.0	2	18 19 27.34	0.914	23 24 52.2	0.76	9 36.2
3	18 34 1.44	1.388	23 11 24.0	1.48	11 48.6	3	18 19 5.74	0.886	23 25 10.1	0.73	9 31.9
4	18 33 28.16	1.386	23 11 59.3	1.46	11 44.1	4	18 18 44.80	0.858	23 25 27.5	0.71	9 27.6
5	18 32 54.97	1.382	23 12 34.1	1.44	11 39.6	5	18 18 24.53	0.830	23 25 44.3	0.69	9 23.4
6	18 32 21.87	-1.377	23 13 8.4	-1.42	11 35.1	6	18 18 4.94	-0.801	23 26 0.6	-0.67	9 19.1
7	18 31 48.89	1.371	23 13 42.2	1.40	11 30.6	7	18 17 46.05	0.772	23 26 16.5	0.65	9 14.9
8	18 31 16.05	1.364	23 14 15.5	1.38	11 26.2	8	18 17 27.87	0.743	23 26 31.9	0.63	9 10.6
9	18 30 43.38	1.357	23 14 48.2	1.35	11 21.7	9	18 17 10.40	0.713	23 26 46.8	0.61	9 6.4
10	18 30 10.91	1.349	23 15 20.3	1.33	11 17.2	10	18 16 53.66	0.682	23 27 1.2	0.59	9 2.2
11	18 29 38.65	-1.340	23 15 51.9	-1.31	11 12.8	11	18 16 37.66	-0.651	23 27 15.2	-0.57	8 58.0
12	18 29 6.62	1.330	23 16 22.9	1.28	11 8.3	12	18 16 22.42	0.619	23 27 28.7	0.55	8 53.8
13	18 28 34.85	1.318	23 16 53.3	1.26	11 3.8	13	18 16 7.94	0.587	23 27 41.8	0.53	8 49.7
14	18 28 3.37	1.305	23 17 23.1	1.23	10 59.4	14	18 15 54.23	0.555	23 27 54.5	0.52	8 45.5
15	18 27 32.19	1.292	23 17 52.3	1.20	10 54.9	15	18 15 41.29	0.523	23 28 6.8	0.50	8 41.4
16	18 27 1.34	-1.278	23 18 20.8	-1.18	10 50.5	16	18 15 29.14	-0.490	23 28 18.6	-0.48	8 37.3
17	18 26 30.85	1.263	23 18 48.7	1.15	10 46.1	17	18 15 17.78	0.457	23 28 30.0	0.47	8 33.2
18	18 26 0.74	1.246	23 19 16.0	1.12	10 41.6	18	18 15 7.21	0.424	23 28 41.1	0.45	8 29.1
19	18 25 31.03	1.229	23 19 42.7	1.10	10 37.2	19	18 14 57.46	0.390	23 28 51.8	0.43	8 25.0
20	18 25 1.74	1.211	23 20 8.7	1.07	10 32.8	20	18 14 48.52	0.356	23 29 2.1	0.42	8 20.9
21	18 24 32.89	-1.193	23 20 34.1	-1.05	10 28.4	21	18 14 40.39	-0.322	23 29 11.9	-0.40	8 16.8
22	18 24 4.49	1.173	23 20 58.9	1.02	10 24.0	22	18 14 33.07	0.288	23 29 21.4	0.39	8 12.8
23	18 23 36.56	1.153	23 21 23.1	0.99	10 19.6	23	18 14 26.57	0.254	23 29 30.6	0.38	8 8.7
24	18 23 9.13	1.132	23 21 46.6	0.97	10 15.2	24	18 14 20.89	0.220	23 29 39.5	0.36	8 4.7
25	18 22 42.21	1.110	23 22 9.5	0.94	10 10.8	25	18 14 16.04	0.186	23 29 48.0	0.34	8 0.7
26	18 22 15.83	-1.087	23 22 31.8	-0.91	10 6.5	26	18 14 12.00	-0.151	23 29 56.2	-0.33	7 56.7
27	18 21 50.00	1.064	23 22 53.6	0.89	10 2.1	27	18 14 8.79	0.117	23 30 4.0	0.31	7 52.7
28	18 21 24.74	1.040	23 23 14.8	0.86	9 57.8	28	18 14 6.41	0.083	23 30 11.6	0.30	7 48.8
29	18 21 0.05	1.016	23 23 35.4	0.84	9 53.4	29	18 14 4.85	0.048	23 30 18.8	0.29	7 44.8
30	18 20 35.95	0.992	23 23 55.4	0.82	9 49.1	30	18 14 4.12	-0.014	23 30 25.7	0.27	7 40.9
31	18 20 12.45	-0.967	23 24 14.9	-0.80	9 44.8	31	18 14 4.22	+0.021	23 30 32.3	-0.25	7 36.9
32	18 19 49.58	-0.941	23 24 33.8	-0.78	9 40.5	32	18 14 5.15	+0.056	23 30 38.6	-0.24	7 33.0
Day of the Month.		4th.	12th.	20th.	28th.	Day of the Month.		5th.	13th.	21st.	29th.
Semidiameter		22.45	22.37	22.19	21.92	Semidiameter		21.59	21.19	20.76	20.29
Horizontal Parallax		2.10	2.10	2.08	2.05	Horizontal Parallax		2.02	1.98	1.94	1.90

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.						
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m	
1	18 14 5.15	+0.056	—23 30 38.6	—0.24	7 33.0	1	18 20 47.32	+1.034	—23 30 47.0	+0.29	5 41.8	
2	18 14 6.90	0.091	23 30 44.5	0.23	7 29.1	2	18 21 12.49	1.064	23 30 39.7	0.31	5 38.3	
3	18 14 9.47	0.125	23 30 50.1	0.22	7 25.3	3	18 21 38.36	1.093	23 30 31.7	0.34	5 34.8	
4	18 14 12.86	0.159	23 30 55.4	0.21	7 21.4	4	18 22 4.94	1.122	23 30 23.0	0.37	5 31.4	
5	18 14 17.08	0.194	23 31 0.3	0.20	7 17.5	5	18 22 32.20	1.150	23 30 13.7	0.40	5 27.9	
6	18 14 22.12	+0.228	—23 31 4.9	—0.19	7 13.7	6	18 23 0.13	+1.178	—23 30 3.6	+0.43	5 24.4	
7	18 14 27.99	0.262	23 31 9.1	0.17	7 9.8	7	18 23 28.74	1.206	23 29 52.8	0.46	5 20.9	
8	18 14 34.68	0.296	23 31 13.0	0.16	7 6.0	8	18 23 58.02	1.234	23 29 41.3	0.49	5 17.5	
9	18 14 42.19	0.330	23 31 16.6	0.15	7 2.2	9	18 24 27.96	1.262	23 29 29.0	0.52	5 14.0	
10	18 14 50.51	0.364	23 31 19.8	0.13	6 58.4	10	18 24 58.56	1.289	23 29 15.9	0.56	5 10.6	
11	18 14 59.66	+0.398	—23 31 22.6	—0.12	6 54.7	11	18 25 29.81	+1.316	—23 29 2.1	+0.59	5 7.2	
12	18 15 9.62	0.432	23 31 25.0	0.10	6 50.9	12	18 26 1.71	1.342	23 28 47.5	0.62	5 3.8	
13	18 15 20.39	0.465	23 31 27.1	0.08	6 47.1	13	18 26 34.24	1.368	23 28 32.0	0.66	5 0.4	
14	18 15 31.96	0.499	23 31 28.8	0.06	6 43.4	14	18 27 7.39	1.394	23 28 15.7	0.69	4 57.0	
15	18 15 44.35	0.532	23 31 30.0	0.04	6 39.7	15	18 27 41.16	1.420	23 27 58.5	0.73	4 53.6	
16	18 15 57.53	+0.565	—23 31 30.8	—0.02	6 36.0	16	18 28 15.55	+1.445	—23 27 40.5	+0.77	4 50.3	
17	18 16 11.50	0.598	23 31 31.2	—0.01	6 32.3	17	18 28 50.54	1.470	23 27 21.5	0.81	4 47.0	
18	18 16 26.26	0.631	23 31 31.3	+0.01	6 28.6	18	18 29 26.12	1.495	23 27 1.6	0.85	4 43.6	
19	18 16 41.81	0.664	23 31 30.9	0.03	6 24.9	19	18 30 2.29	1.519	23 26 40.8	0.89	4 40.3	
20	18 16 58.14	0.696	23 31 30.0	0.05	6 21.3	20	18 30 39.05	1.543	23 26 19.0	0.93	4 37.0	
21	18 17 15.24	+0.728	—23 31 28.7	+0.07	6 17.6	21	18 31 16.38	+1.567	—23 25 56.2	+0.97	4 33.7	
22	18 17 33.11	0.760	23 31 26.9	0.09	6 14.0	22	18 31 54.26	1.590	23 25 32.4	1.01	4 30.4	
23	18 17 51.74	0.792	23 31 24.6	0.11	6 10.4	23	18 32 32.70	1.613	23 25 7.6	1.05	4 27.1	
24	18 18 11.12	0.823	23 31 21.8	0.13	6 6.8	24	18 33 11.69	1.636	23 24 41.7	1.09	4 23.8	
25	18 18 31.24	0.854	23 31 18.5	0.15	6 3.2	25	18 33 51.22	1.658	23 24 14.8	1.14	4 20.5	
26	18 18 52.11	+0.885	—23 31 14.6	+0.17	5 59.6	26	18 34 31.27	+1.680	—23 23 46.9	+1.18	4 17.3	
27	18 19 13.71	0.915	23 31 10.3	0.19	5 56.0	27	18 35 11.84	1.702	23 23 17.9	1.23	4 14.0	
28	18 19 36.03	0.945	23 31 5.4	0.22	5 52.5	28	18 35 52.94	1.723	23 22 47.8	1.28	4 10.8	
29	18 19 59.08	0.975	23 30 59.9	0.24	5 48.9	29	18 36 34.55	1.744	23 22 16.6	1.32	4 7.6	
30	18 20 22.85	1.005	23 30 53.7	0.26	5 45.4	30	18 37 16.65	1.765	23 21 44.2	1.37	4 4.3	
31	18 20 47.32	+1.034	—23 30 47.0	+0.29	5 41.8	31	18 37 59.24	+1.785	—23 21 10.6	+1.42	4 1.1	
32	18 21 12.49	+1.064	—23 30 39.7	+0.31	5 38.3	32	18 38 42.33	+1.805	—23 20 35.8	+1.47	3 57.9	
Day of the Month.			6th.	14th.	22d.	30th.	Day of the Month.			8th.	16th.	24th.
			"	"	"	"				"	"	"
Semidiameter			19.82	19.33	18.87	18.41	Semidiameter			17.98	17.58	17.21
Horizontal Parallax			1.85	1.81	1.76	1.72	Horizontal Parallax			1.68	1.64	1.61

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	18 38 42.33	+1.805	23 20 35.8	+1.47	3 57.9	1	19 3 26.63	+2.270	22 52 45.8	+3.23	2 24.5
2	18 39 25.91	1.825	23 19 59.9	1.52	3 54.7	2	19 4 21.26	2.281	22 51 27.3	3.30	2 21.5
3	18 40 9.96	1.845	23 19 22.7	1.58	3 51.5	3	19 5 16.15	2.292	22 50 7.2	3.37	2 18.5
4	18 40 54.47	1.864	23 18 44.2	1.63	3 48.3	4	19 6 11.30	2.303	22 48 45.5	3.43	2 15.5
5	18 41 39.45	1.883	23 18 4.5	1.68	3 45.1	5	19 7 6.69	2.313	22 47 22.2	3.50	2 12.5
6	18 42 24.89	+1.902	23 17 23.5	+1.74	3 41.9	6	19 8 2.32	+2.323	22 45 57.3	+3.57	2 9.5
7	18 43 10.77	1.921	23 16 41.2	1.79	3 38.7	7	19 8 58.20	2.332	22 44 30.7	3.63	2 6.5
8	18 43 57.10	1.940	23 15 57.6	1.84	3 35.5	8	19 9 54.29	2.341	22 43 2.6	3.70	2 3.5
9	18 44 43.87	1.958	23 15 12.7	1.90	3 32.4	9	19 10 50.59	2.350	22 41 32.9	3.77	2 0.5
10	18 45 31.07	1.976	23 14 26.4	1.95	3 29.2	10	19 11 47.10	2.359	22 40 1.6	3.83	1 57.5
11	18 46 18.68	+1.993	23 13 38.8	+2.01	3 26.1	11	19 12 43.83	+2.368	22 38 28.7	+3.90	1 54.5
12	18 47 6.69	2.009	23 12 49.9	2.07	3 23.0	12	19 13 40.75	2.376	22 36 54.2	3.97	1 51.5
13	18 47 55.11	2.026	23 11 59.6	2.12	3 19.9	13	19 14 37.86	2.384	22 35 18.1	4.03	1 48.5
14	18 48 43.93	2.042	23 11 7.9	2.18	3 16.7	14	19 15 35.16	2.391	22 33 40.4	4.10	1 45.6
15	18 49 33.13	2.058	23 10 14.8	2.24	3 13.6	15	19 16 32.64	2.398	22 32 1.2	4.17	1 42.6
16	18 50 22.71	+2.074	23 9 20.3	+2.30	3 10.5	16	19 17 30.28	+2.405	22 30 20.3	+4.23	1 39.6
17	18 51 12.66	2.089	23 8 24.3	2.36	3 7.4	17	19 18 28.08	2.412	22 28 37.8	4.30	1 36.6
18	18 52 2.98	2.104	23 7 26.9	2.42	3 4.3	18	19 19 26.03	2.418	22 26 53.8	4.37	1 33.7
19	18 52 53.65	2.119	23 6 28.1	2.48	3 1.2	19	19 20 24.14	2.424	22 25 8.2	4.43	1 30.7
20	18 53 44.66	2.133	23 5 27.8	2.54	2 58.1	20	19 21 22.39	2.430	22 23 21.0	4.50	1 27.7
21	18 54 36.02	+2.147	23 4 26.1	+2.60	2 55.1	21	19 22 20.76	+2.435	22 21 32.2	+4.56	1 24.8
22	18 55 27.71	2.160	23 3 22.9	2.66	2 52.0	22	19 23 19.25	2.440	22 19 41.9	4.63	1 21.8
23	18 56 19.72	2.173	23 2 18.2	2.72	2 48.9	23	19 24 17.87	2.445	22 17 50.0	4.70	1 18.8
24	18 57 12.04	2.186	23 1 12.0	2.79	2 45.8	24	19 25 16.60	2.449	22 15 56.5	4.76	1 15.9
25	18 58 4.67	2.199	23 0 4.3	2.85	2 42.8	25	19 26 15.44	2.454	22 14 1.5	4.83	1 12.9
26	18 58 57.61	+2.212	22 58 55.1	+2.91	2 39.7	26	19 27 14.38	+2.458	22 12 4.9	+4.90	1 10.0
27	18 59 50.84	2.224	22 57 44.3	2.98	2 36.7	27	19 28 13.42	2.462	22 10 6.7	4.96	1 7.0
28	19 0 44.36	2.236	22 56 32.0	3.04	2 33.6	28	19 29 12.56	2.466	22 8 7.0	5.02	1 4.1
29	19 1 38.18	2.248	22 55 18.2	3.10	2 30.6	29	19 30 11.78	2.469	22 6 5.8	5.09	1 1.1
30	19 2 32.27	2.259	22 54 2.8	3.17	2 27.5	30	19 31 11.08	2.472	22 4 3.0	5.15	0 58.2
31	19 3 26.63	+2.270	22 52 45.8	+3.23	2 24.5	31	19 32 10.45	+2.475	22 1 58.7	+5.21	0 55.2
32	19 4 21.26	+2.281	22 51 27.3	+3.30	2 21.5	32	19 33 9.89	+2.478	21 59 52.9	+5.28	0 52.3
Day of the Month.	1st.	9th.	17th.	25th.		Day of the Month.	3d.	11th.	19th.	27th.	35th.
Semidiameter	"	"	"	"		Semidiameter	"	"	"	"	"
Horizontal Parallax	16.87	16.56	16.29	16.06		Horizontal Parallax	15.86	15.69	15.56	15.46	15.41
	1.58	1.55	1.52	1.50			1.48	1.47	1.46	1.45	1.44

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign — indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	18 33 39.09	+1.277	-22 37 29.1	+0.86	23 48.5	1	18 48 56.17	+1.154	-22 24 2.2	+1.25	22 1.7
2	18 34 9.73	1.276	22 37 8.1	0.88	23 45.1	2	18 49 23.79	1.147	22 23 32.2	1.26	21 58.2
3	18 34 40.34	1.275	22 36 46.7	0.90	23 41.7	3	18 49 51.24	1.140	22 23 2.1	1.26	21 54.7
4	18 35 10.92	1.274	22 36 24.9	0.92	23 38.2	4	18 50 18.51	1.132	22 22 31.9	1.26	21 51.2
5	18 35 41.48	1.272	22 36 2.8	0.94	23 34.8	5	18 50 45.59	1.124	22 22 1.6	1.27	21 47.8
6	18 36 12.00	+1.271	-22 35 40.3	+0.96	23 31.4	6	18 51 12.48	+1.116	-22 21 31.1	+1.27	21 44.3
7	18 36 42.47	1.269	22 35 17.4	0.97	23 28.0	7	18 51 39.18	1.108	22 21 0.6	1.28	21 40.8
8	18 37 12.90	1.267	22 34 54.1	0.99	23 24.5	8	18 52 5.68	1.100	22 20 30.0	1.28	21 37.3
9	18 37 43.28	1.265	22 34 30.4	1.00	23 21.1	9	18 52 31.98	1.092	22 19 59.3	1.28	21 33.8
10	18 38 13.61	1.263	22 34 6.4	1.02	23 17.7	10	18 52 58.08	1.083	22 19 28.6	1.28	21 30.3
11	18 38 43.87	+1.260	-22 33 42.0	+1.03	23 14.3	11	18 53 23.96	+1.074	-22 18 57.9	+1.28	21 26.8
12	18 39 14.06	1.257	22 33 17.2	1.05	23 10.8	12	18 53 49.62	1.065	22 18 27.2	1.28	21 23.3
13	18 39 44.19	1.254	22 32 52.0	1.06	23 7.4	13	18 54 15.06	1.056	22 17 56.4	1.28	21 19.8
14	18 40 14.25	1.251	22 32 26.6	1.07	23 3.9	14	18 54 40.29	1.046	22 17 25.6	1.28	21 16.3
15	18 40 44.22	1.247	22 32 0.8	1.09	23 0.5	15	18 55 5.28	1.036	22 16 54.8	1.27	21 12.8
16	18 41 14.10	+1.243	-22 31 34.7	+1.10	22 57.0	16	18 55 30.03	+1.026	-22 16 24.1	+1.27	21 9.3
17	18 41 43.89	1.239	22 31 8.3	1.11	22 53.6	17	18 55 54.54	1.016	22 15 53.5	1.27	21 5.7
18	18 42 13.59	1.235	22 30 41.6	1.12	22 50.2	18	18 56 18.81	1.006	22 15 22.9	1.27	21 2.2
19	18 42 43.18	1.231	22 30 14.6	1.13	22 46.8	19	18 56 42.83	0.995	22 14 52.4	1.26	20 58.7
20	18 43 12.66	1.226	22 29 47.3	1.14	22 43.3	20	18 57 6.59	0.984	22 14 22.0	1.26	20 55.2
21	18 43 42.03	+1.221	-22 29 19.8	+1.15	22 39.9	21	18 57 30.08	+0.973	-22 13 51.7	+1.26	20 51.6
22	18 44 11.28	1.216	22 28 52.0	1.16	22 36.4	22	18 57 53.31	0.962	22 13 21.5	1.25	20 48.1
23	18 44 40.41	1.211	22 28 24.0	1.17	22 33.0	23	18 58 16.27	0.951	22 12 51.5	1.25	20 44.5
24	18 45 9.41	1.206	22 27 55.7	1.18	22 29.5	24	18 58 38.95	0.940	22 12 21.6	1.24	20 40.9
25	18 45 38.28	1.200	22 27 27.2	1.19	22 26.1	25	18 59 1.36	0.929	22 11 51.9	1.24	20 37.3
26	18 46 7.01	+1.194	-22 26 58.5	+1.20	22 22.6	26	18 59 23.50	+0.917	-22 11 22.3	+1.23	20 33.8
27	18 46 35.59	1.188	22 26 29.6	1.21	22 19.1	27	18 59 45.35	0.905	22 10 52.9	1.22	20 30.2
28	18 47 4.02	1.182	22 26 0.5	1.22	22 15.6	28	19 0 6.91	0.893	22 10 23.7	1.21	20 26.6
29	18 47 32.30	1.175	22 25 31.1	1.23	22 12.2	29	19 0 28.17	0.881	22 9 54.7	1.20	20 23.0
30	18 48 0.42	1.168	22 25 1.6	1.24	22 8.7	30	19 0 49.13	0.868	22 9 26.0	1.19	20 19.5
31	18 48 28.38	+1.161	-22 24 32.0	+1.25	22 5.2	31	19 1 9.80	+0.855	-22 8 57.5	+1.18	20 15.9
32	18 48 56.17	+1.154	-22 24 2.2	+1.25	22 1.7	32	19 1 30.16	+0.842	-22 8 29.2	+1.17	20 12.3
Day of the Month.		1st.	9th.	17th.	25th.	Day of the Month.		2d.	10th.	18th.	26th.
Semidiameter		7.08	7.09	7.11	7.13	Semidiameter		7.18	7.23	"	"
Horizontal Parallax		0.80	0.80	0.80	0.81	Horizontal Parallax		0.81	0.82	0.82	0.83

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	19 0 28.17	+0.881	22 9 54.7	+1.20	20 23.0	1	19 8 42.34	+0.427	21 57 56.1	+0.65	18 29.2
2	19 0 49.13	0.868	22 9 26.0	1.19	20 19.5	2	19 8 52.37	0.410	21 57 40.9	0.62	18 25.4
3	19 1 9.80	0.855	22 8 57.5	1.18	20 15.9	3	19 9 2.01	0.394	21 57 26.3	0.60	18 21.6
4	19 1 30.16	0.842	22 8 29.2	1.17	20 12.3	4	19 9 11.25	0.377	21 57 12.3	0.57	18 17.8
5	19 1 50.22	0.829	22 8 1.2	1.16	20 8.7	5	19 9 20.08	0.360	21 56 59.0	0.55	18 14.1
6	19 2 9.97	+0.816	22 7 33.5	+1.15	20 5.1	6	19 9 28.51	+0.343	21 56 46.4	+0.52	18 10.3
7	19 2 29.40	0.803	22 7 6.1	1.14	20 1.5	7	19 9 36.54	0.326	21 56 34.4	0.49	18 6.4
8	19 2 48.51	0.790	22 6 39.0	1.12	19 57.9	8	19 9 44.16	0.309	21 56 23.1	0.46	18 2.6
9	19 3 7.30	0.777	22 6 12.2	1.11	19 54.2	9	19 9 51.37	0.292	21 56 12.4	0.43	17 58.8
10	19 3 25.78	0.763	22 5 45.8	1.09	19 50.6	10	19 9 58.17	0.275	21 56 2.4	0.41	17 55.0
11	19 3 43.92	+0.749	22 5 19.7	+1.08	19 46.9	11	19 10 4.57	+0.258	21 55 53.1	+0.38	17 51.2
12	19 4 1.72	0.735	22 4 54.0	1.06	19 43.3	12	19 10 10.55	0.241	21 55 44.5	0.35	17 47.3
13	19 4 19.19	0.721	22 4 28.6	1.05	19 39.6	13	19 10 16.11	0.224	21 55 36.6	0.32	17 43.5
14	19 4 36.32	0.707	22 4 3.6	1.03	19 36.0	14	19 10 21.26	0.206	21 55 29.3	0.29	17 39.6
15	19 4 53.11	0.692	22 3 39.0	1.01	19 32.3	15	19 10 25.99	0.189	21 55 22.7	0.26	17 35.8
16	19 5 9.54	+0.677	22 3 14.9	+1.00	19 28.7	16	19 10 30.30	+0.171	21 55 16.9	+0.23	17 31.9
17	19 5 25.62	0.662	22 2 51.2	0.98	19 25.0	17	19 10 34.19	0.153	21 55 11.8	0.20	17 28.1
18	19 5 41.35	0.647	22 2 27.9	0.96	19 21.3	18	19 10 37.65	0.135	21 55 7.4	0.17	17 24.2
19	19 5 56.72	0.632	22 2 5.1	0.94	19 17.6	19	19 10 40.69	0.118	21 55 3.8	0.14	17 20.3
20	19 6 11.72	0.617	22 1 42.8	0.92	19 13.9	20	19 10 43.31	0.100	21 55 0.9	0.11	17 16.4
21	19 6 26.35	+0.602	22 1 21.0	+0.90	19 10.2	21	19 10 45.51	+0.083	21 54 58.7	+0.08	17 12.5
22	19 6 40.62	0.587	22 0 59.7	0.88	19 6.5	22	19 10 47.28	0.065	21 54 57.3	0.05	17 8.6
23	19 6 54.51	0.572	22 0 38.9	0.86	19 2.8	23	19 10 48.63	0.047	21 54 56.6	+0.02	17 4.7
24	19 7 8.02	0.556	22 0 18.6	0.84	18 59.1	24	19 10 49.56	0.030	21 54 56.6	-0.02	17 0.7
25	19 7 21.16	0.540	21 59 58.8	0.81	18 55.4	25	19 10 50.07	+0.012	21 54 57.4	0.05	16 56.8
26	19 7 33.92	+0.524	21 59 39.5	+0.79	18 51.7	26	19 10 50.17	-0.006	21 54 58.9	-0.08	16 52.9
27	19 7 46.29	0.508	21 59 20.8	0.77	18 48.0	27	19 10 49.85	0.023	21 55 1.1	0.11	16 48.9
28	19 7 58.28	0.492	21 59 2.7	0.74	18 44.3	28	19 10 49.11	0.040	21 55 4.1	0.14	16 45.0
29	19 8 9.88	0.476	21 58 45.2	0.72	18 40.5	29	19 10 47.96	0.057	21 55 7.8	0.17	16 41.0
30	19 8 21.09	0.459	21 58 28.3	0.69	18 36.7	30	19 10 46.39	0.074	21 55 12.2	0.20	16 37.1
31	19 8 31.91	+0.443	21 58 11.9	+0.67	18 32.9	31	19 10 44.41	-0.091	21 55 17.3	-0.23	16 33.1
32	19 8 42.34	+0.427	21 57 56.1	+0.65	18 29.2	32	19 10 42.02	-0.108	21 55 23.2	-0.26	16 29.1

Day of the Month.	6th.	14th.	22d.	30th.	Day of the Month.	7th.	15th.	23d.
Semidiameter	7.43	7.52	7.62	7.71	Semidiameter	7.82	7.92	8.03
Horizontal Parallax . .	0.84	0.85	0.86	0.87	Horizontal Parallax	0.88	0.90	0.91

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign — indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.						JUNE.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	19 10 44.41	-0.091	-21 55 17.3	-0.23	16 33.1	1	19 6 30.64	-0.565	-22 3 29.1	-1.03	14 26.9
2	19 10 42.02	0.108	21 55 23.2	0.26	16 29.1	2	19 6 16.93	0.577	22 3 54.1	1.05	14 22.7
3	19 10 39.22	0.125	21 55 29.8	0.29	16 25.1	3	19 6 2.93	0.589	22 4 19.5	1.07	14 18.6
4	19 10 36.01	0.142	21 55 37.1	0.32	16 21.2	4	19 5 48.66	0.600	22 4 45.3	1.09	14 14.4
5	19 10 32.38	0.159	21 55 45.1	0.35	16 17.2	5	19 5 34.12	0.611	22 5 11.5	1.11	14 10.2
6	19 10 28.35	-0.176	-21 55 53.9	-0.38	16 13.2	6	19 5 19.31	-0.622	-22 5 38.2	-1.12	14 6.0
7	19 10 23.92	0.193	21 56 3.3	0.41	16 9.2	7	19 5 4.24	0.633	22 6 5.2	1.14	14 1.9
8	19 10 19.09	0.210	21 56 13.4	0.44	16 5.1	8	19 4 48.92	0.644	22 6 32.6	1.15	13 57.7
9	19 10 13.86	0.226	21 56 24.2	0.47	16 1.1	9	19 4 33.35	0.654	22 7 0.3	1.17	13 53.5
10	19 10 8.23	0.243	21 56 35.8	0.50	15 57.1	10	19 4 17.54	0.664	22 7 28.3	1.18	13 49.3
11	19 10 2.21	-0.259	-21 56 48.1	-0.53	15 53.1	11	19 4 1.49	-0.673	-22 7 56.7	-1.19	13 45.1
12	19 9 55.79	0.276	21 57 1.0	0.56	15 49.0	12	19 3 45.22	0.682	22 8 25.4	1.20	13 40.9
13	19 9 48.98	0.292	21 57 14.6	0.59	15 45.0	13	19 3 28.74	0.691	22 8 54.4	1.21	13 36.7
14	19 9 41.78	0.308	21 57 29.0	0.61	15 40.9	14	19 3 12.04	0.699	22 9 23.6	1.22	13 32.5
15	19 9 34.20	0.324	21 57 44.0	0.64	15 36.8	15	19 2 55.14	0.707	22 9 53.1	1.23	13 28.2
16	19 9 26.24	-0.340	-21 57 59.6	-0.67	15 32.8	16	19 2 38.06	-0.715	-22 10 22.8	-1.24	13 24.0
17	19 9 17.89	0.356	21 58 15.7	0.69	15 28.7	17	19 2 20.79	0.723	22 10 52.7	1.25	13 19.8
18	19 9 9.17	0.371	21 58 32.6	0.72	15 24.6	18	19 2 3.34	0.730	22 11 22.8	1.26	13 15.6
19	19 9 0.08	0.386	21 58 50.1	0.74	15 20.5	19	19 1 45.73	0.737	22 11 53.1	1.27	13 11.4
20	19 8 50.63	0.401	21 59 8.2	0.77	15 16.4	20	19 1 27.97	0.743	22 12 23.6	1.28	13 7.1
21	19 8 40.81	-0.416	-21 59 27.0	-0.79	15 12.3	21	19 1 10.07	-0.749	-22 12 54.2	-1.28	13 2.9
22	19 8 30.63	0.431	21 59 46.4	0.82	15 8.2	22	19 0 52.02	0.755	22 13 24.9	1.29	12 58.7
23	19 8 20.11	0.445	22 0 6.3	0.84	15 4.1	23	19 0 33.84	0.760	22 13 55.8	1.29	12 54.4
24	19 8 9.25	0.459	22 0 26.7	0.86	15 0.0	24	19 0 15.56	0.764	22 14 26.7	1.29	12 50.2
25	19 7 58.06	0.473	22 0 47.7	0.89	14 55.9	25	18 59 57.17	0.768	22 14 57.7	1.29	12 45.9
26	19 7 46.52	-0.487	-22 1 9.2	-0.91	14 51.8	26	18 59 38.67	-0.772	-22 15 28.8	-1.30	12 41.7
27	19 7 34.66	0.501	22 1 31.3	0.93	14 47.6	27	18 59 20.08	0.776	22 16 0.0	1.30	12 37.5
28	19 7 22.48	0.514	22 1 53.9	0.95	14 43.5	28	18 59 1.42	0.779	22 16 31.2	1.30	12 33.2
29	19 7 9.97	0.527	22 2 17.0	0.97	14 39.4	29	18 58 42.69	0.782	22 17 2.4	1.30	12 29.0
30	19 6 57.16	0.540	22 2 40.6	0.99	14 35.2	30	18 58 23.89	0.784	22 17 33.5	1.30	12 24.7
31	19 6 44.05	-0.553	-22 3 4.6	-1.01	14 31.1	31	18 58 5.04	-0.786	-22 18 4.7	-1.30	12 20.5
32	19 6 30.64	-0.565	-22 3 29.1	-1.03	14 26.9	32	18 57 46.15	-0.788	-22 18 35.9	-1.30	12 16.3
Day of the Month.		1st.	9th.	17th.	25th.	Day of the Month.		2d.	10th.	18th.	26th.
Semidiameter		8.13	8.24	8.34	8.41	Semidiameter		8.49	8.55	8.59	8.63
Horizontal Parallax		0.92	0.93	0.94	0.95	Horizontal Parallax		0.96	0.97	0.97	0.98

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

JULY.						AUGUST.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	18 58 5.04	-0.786	22 18 4.7	-1.30	12 20.5	1	18 48 45.41	-0.656	22 32 59.3	-1.04	10 9.4
2	18 57 46.15	0.788	22 18 35.9	1.30	12 16.3	2	18 48 29.73	0.646	22 33 23.9	1.02	10 5.2
3	18 57 27.22	0.789	22 19 7.1	1.30	12 12.0	3	18 48 14.40	0.636	22 33 48.2	1.01	10 1.0
4	18 57 8.26	0.789	22 19 38.2	1.29	12 7.8	4	18 47 59.28	0.625	22 34 12.2	1.00	9 56.8
5	18 56 49.28	0.790	22 20 9.2	1.29	12 3.5	5	18 47 44.41	0.614	22 34 35.8	0.98	9 52.6
6	18 56 30.30	-0.790	22 20 40.2	-1.29	11 59.3	6	18 47 29.80	-0.603	22 34 59.0	-0.97	9 48.5
7	18 56 11.32	0.789	22 21 11.1	1.28	11 55.0	7	18 47 15.47	0.591	22 35 21.9	0.95	9 44.3
8	18 55 52.35	0.789	22 21 41.9	1.28	11 50.8	8	18 47 1.42	0.579	22 35 44.4	0.94	9 40.1
9	18 55 33.40	0.788	22 22 12.6	1.28	11 46.5	9	18 46 47.65	0.567	22 36 6.6	0.92	9 36.0
10	18 55 14.49	0.787	22 22 43.1	1.27	11 42.3	10	18 46 34.17	0.555	22 36 28.4	0.90	9 31.8
11	18 54 55.61	-0.785	22 23 13.5	-1.27	11 38.0	11	18 46 21.00	-0.542	22 36 49.8	-0.88	9 27.7
12	18 54 36.77	0.783	22 23 43.8	1.26	11 33.8	12	18 46 8.14	0.529	22 37 10.8	0.86	9 23.5
13	18 54 17.99	0.781	22 24 13.9	1.25	11 29.6	13	18 45 55.59	0.516	22 37 31.3	0.85	9 19.4
14	18 53 59.29	0.778	22 24 43.8	1.25	11 25.3	14	18 45 43.36	0.503	22 37 51.5	0.83	9 15.3
15	18 53 40.67	0.774	22 25 13.5	1.24	11 21.1	15	18 45 31.47	0.489	22 38 11.3	0.82	9 11.2
16	18 53 22.13	-0.770	22 25 43.0	-1.23	11 16.8	16	18 45 19.91	-0.475	22 38 30.7	-0.80	9 7.0
17	18 53 3.69	0.766	22 26 12.3	1.22	11 12.6	17	18 45 8.68	0.461	22 38 49.6	0.78	9 2.9
18	18 52 45.37	0.761	22 26 41.4	1.21	11 8.4	18	18 44 57.80	0.446	22 39 8.2	0.76	8 58.8
19	18 52 27.17	0.756	22 27 10.2	1.20	11 4.1	19	18 44 47.28	0.431	22 39 26.4	0.74	8 54.7
20	18 52 9.09	0.750	22 27 38.8	1.19	10 59.9	20	18 44 37.11	0.416	22 39 44.1	0.73	8 50.6
21	18 51 51.14	-0.744	22 28 7.1	-1.18	10 55.7	21	18 44 27.29	-0.401	22 40 1.4	-0.71	8 46.5
22	18 51 33.35	0.738	22 28 35.1	1.17	10 51.4	22	18 44 17.84	0.386	22 40 18.3	0.70	8 42.4
23	18 51 15.72	0.731	22 29 2.9	1.15	10 47.2	23	18 44 8.76	0.371	22 40 34.8	0.68	8 38.4
24	18 50 58.25	0.724	22 29 30.4	1.14	10 43.0	24	18 44 0.06	0.355	22 40 50.9	0.67	8 34.3
25	18 50 40.95	0.717	22 29 57.6	1.13	10 38.8	25	18 43 51.73	0.339	22 41 6.5	0.65	8 30.2
26	18 50 23.84	-0.709	22 30 24.5	-1.12	10 34.6	26	18 43 43.78	-0.323	22 41 21.8	-0.63	8 26.1
27	18 50 6.92	0.701	22 30 51.1	1.11	10 30.4	27	18 43 36.22	0.307	22 41 36.7	0.61	8 22.1
28	18 49 50.19	0.693	22 31 17.4	1.09	10 26.2	28	18 43 29.04	0.291	22 41 51.1	0.59	8 18.0
29	18 49 33.66	0.684	22 31 43.4	1.08	10 22.0	29	18 43 22.25	0.275	22 42 5.1	0.58	8 14.0
30	18 49 17.35	0.675	22 32 9.0	1.07	10 17.8	30	18 43 15.85	0.259	22 42 18.7	0.56	8 10.0
31	18 49 1.27	-0.666	22 32 34.3	-1.05	10 13.6	31	18 43 9.85	-0.242	22 42 31.9	-0.54	8 5.9
32	18 48 45.41	-0.656	22 32 59.3	-1.04	10 9.4	32	18 43 4.25	-0.225	22 42 44.7	-0.52	8 1.9

Day of the Month.	4th.	12th.	20th.	28th.	Day of the Month.	5th.	13th.	21st.	29th.
	"	"	"	"		"	"	"	"
Semidiameter	8.65	8.63	8.61	8.57	Semidiameter	8.51	8.44	8.36	8.28
Horizontal Parallax . . .	0.98	0.98	0.97	0.97	Horizontal Parallax . . .	0.96	0.96	0.95	0.94

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	18 43 4.25	-0.225	22 42 44.7	-0.52	8 1.9	1	18 43 30.32	+0.300	22 45 42.6	+0.04	6 4.4
2	18 42 59.04	0.208	22 42 57.0	0.50	7 57.9	2	18 43 37.72	0.318	22 45 41.5	0.06	6 0.6
3	18 42 54.24	0.191	22 43 8.9	0.48	7 53.9	3	18 43 45.54	0.335	22 45 39.9	0.08	5 56.8
4	18 42 49.84	0.174	22 43 20.4	0.46	7 49.9	4	18 43 53.77	0.352	22 45 37.8	0.10	5 53.0
5	18 42 45.85	0.157	22 43 31.4	0.45	7 45.9	5	18 44 2.41	0.369	22 45 35.2	0.12	5 49.2
6	18 42 42.27	-0.140	22 43 42.0	-0.43	7 41.9	6	18 44 11.46	+0.386	22 45 32.1	+0.14	5 45.4
7	18 42 39.11	0.123	22 43 52.2	0.41	7 37.9	7	18 44 20.92	0.403	22 45 28.6	0.16	5 41.6
8	18 42 36.37	0.106	22 44 1.9	0.39	7 33.9	8	18 44 30.79	0.420	22 45 24.6	0.18	5 37.9
9	18 42 34.04	0.089	22 44 11.2	0.37	7 30.0	9	18 44 41.06	0.437	22 45 20.1	0.20	5 34.1
10	18 42 32.13	0.071	22 44 20.1	0.35	7 26.0	10	18 44 51.73	0.454	22 45 15.1	0.22	5 30.4
11	18 42 30.64	-0.053	22 44 28.5	-0.34	7 22.1	11	18 45 2.80	+0.470	22 45 9.6	+0.24	5 26.6
12	18 42 29.58	0.036	22 44 36.5	0.32	7 18.1	12	18 45 14.28	0.487	22 45 3.5	0.26	5 22.9
13	18 42 28.95	-0.018	22 44 44.0	0.30	7 14.2	13	18 45 26.14	0.503	22 44 57.0	0.28	5 19.1
14	18 42 28.74	0.000	22 44 51.1	0.28	7 10.2	14	18 45 38.39	0.519	22 44 49.9	0.30	5 15.4
15	18 42 28.96	+0.018	22 44 57.7	0.26	7 6.3	15	18 45 51.04	0.535	22 44 42.3	0.32	5 11.7
16	18 42 29.61	+0.036	22 45 3.9	-0.25	7 2.4	16	18 46 4.08	+0.551	22 44 34.2	+0.35	5 8.0
17	18 42 30.68	0.054	22 45 9.7	0.23	6 58.5	17	18 46 17.50	0.567	22 44 25.6	0.37	5 4.3
18	18 42 32.18	0.072	22 45 15.0	0.21	6 54.6	18	18 46 31.29	0.583	22 44 16.5	0.39	5 0.6
19	18 42 34.11	0.090	22 45 19.8	0.19	6 50.7	19	18 46 45.46	0.599	22 44 6.9	0.41	4 56.9
20	18 42 36.46	0.108	22 45 24.2	0.17	6 46.8	20	18 47 0.01	0.614	22 43 56.7	0.43	4 53.2
21	18 42 39.24	+0.125	22 45 28.2	-0.16	6 42.9	21	18 47 14.93	+0.629	22 43 46.0	+0.46	4 49.5
22	18 42 42.45	0.143	22 45 31.7	0.14	6 39.0	22	18 47 30.21	0.644	22 43 34.8	0.48	4 45.8
23	18 42 46.09	0.161	22 45 34.7	0.12	6 35.1	23	18 47 45.85	0.659	22 43 23.1	0.50	4 42.1
24	18 42 50.15	0.179	22 45 37.3	0.10	6 31.3	24	18 48 1.84	0.674	22 43 10.8	0.52	4 38.5
25	18 42 54.63	0.196	22 45 39.5	0.08	6 27.4	25	18 48 18.19	0.689	22 42 57.9	0.54	4 34.8
26	18 42 59.53	+0.213	22 45 41.3	-0.06	6 23.6	26	18 48 34.89	+0.703	22 42 44.5	+0.57	4 31.2
27	18 43 4.85	0.231	22 45 42.5	0.04	6 19.7	27	18 48 51.94	0.718	22 42 30.6	0.59	4 27.5
28	18 43 10.59	0.248	22 45 43.2	-0.02	6 15.9	28	18 49 9.33	0.732	22 42 16.2	0.61	4 23.9
29	18 43 16.75	0.266	22 45 43.5	0.00	6 12.1	29	18 49 27.06	0.746	22 42 1.2	0.63	4 20.2
30	18 43 23.33	0.283	22 45 43.3	+0.02	6 8.3	30	18 49 45.12	0.760	22 41 45.6	0.65	4 16.6
31	18 43 30.32	+0.300	22 45 42.6	+0.04	6 4.4	31	18 50 3.52	+0.774	22 41 29.5	+0.68	4 13.0
32	18 43 37.72	+0.318	22 45 41.5	+0.06	6 0.6	32	18 50 22.25	+0.788	22 41 12.9	+0.70	4 9.4
Day of the Month.						Day of the Month.					
6th.						8th.					
14th.						16th.					
22d.						24th.					
30th.											
Semidiameter						Semidiameter					
Horizontal Parallax						Horizontal Parallax					
8.17 8.07 7.96 7.86						7.76 7.66 7.57					
0.93 0.91 0.90 0.89						0.88 0.87 0.87					

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	18 50 22.25	+0.788	22 41 12.9	+0.70	4 9.4	1	19 1 56.82	+1.113	22 28 22.9	+1.45	2 23.0
2	18 50 41.31	0.801	22 40 55.7	0.72	4 5.8	2	19 2 23.63	1.121	22 27 48.1	1.47	2 19.5
3	18 51 0.69	0.814	22 40 37.9	0.75	4 2.2	3	19 2 50.63	1.129	22 27 12.7	1.50	2 16.0
4	18 51 20.38	0.827	22 40 19.5	0.77	3 58.6	4	19 3 17.82	1.137	22 26 36.7	1.52	2 12.5
5	18 51 40.39	0.840	22 40 0.6	0.80	3 55.0	5	19 3 45.18	1.144	22 26 0.1	1.54	2 9.0
6	18 52 0.71	+0.853	22 39 41.1	+0.82	3 51.4	6	19 4 12.72	+1.151	22 25 22.9	+1.57	2 5.5
7	18 52 21.34	0.866	22 39 21.0	0.85	3 47.8	7	19 4 40.43	1.158	22 24 45.1	1.59	2 2.1
8	18 52 42.27	0.879	22 39 0.3	0.87	3 44.2	8	19 5 8.30	1.165	22 24 6.8	1.62	1 58.6
9	18 53 3.51	0.891	22 38 39.1	0.90	3 40.7	9	19 5 36.33	1.171	22 23 27.9	1.64	1 55.2
10	18 53 25.04	0.903	22 38 17.3	0.92	3 37.1	10	19 6 4.51	1.177	22 22 48.4	1.66	1 51.7
11	18 53 46.86	+0.915	22 37 54.9	+0.94	3 33.5	11	19 6 32.84	+1.183	22 22 8.3	+1.69	1 48.3
12	18 54 8.96	0.927	22 37 31.9	0.97	3 29.9	12	19 7 1.31	1.189	22 21 27.7	1.71	1 44.8
13	18 54 31.35	0.939	22 37 8.2	0.99	3 26.4	13	19 7 29.92	1.195	22 20 46.5	1.73	1 41.4
14	18 54 54.01	0.950	22 36 44.1	1.02	3 22.8	14	19 7 58.66	1.201	22 20 4.7	1.75	1 37.9
15	18 55 16.94	0.961	22 36 19.4	1.04	3 19.3	15	19 8 27.53	1.206	22 19 22.4	1.77	1 34.5
16	18 55 40.14	+0.972	22 35 54.0	+1.07	3 15.7	16	19 8 56.53	+1.211	22 18 39.5	+1.80	1 31.0
17	18 56 3.61	0.983	22 35 28.0	1.10	3 12.2	17	19 9 25.63	1.216	22 17 56.1	1.82	1 27.6
18	18 56 27.33	0.994	22 35 1.5	1.12	3 8.6	18	19 9 54.84	1.220	22 17 12.2	1.84	1 24.1
19	18 56 51.30	1.004	22 34 34.4	1.15	3 5.1	19	19 10 24.16	1.224	22 16 27.8	1.86	1 20.7
20	18 57 15.51	1.014	22 34 6.7	1.17	3 1.6	20	19 10 53.58	1.228	22 15 42.8	1.88	1 17.2
21	18 57 39.97	+1.024	22 33 38.4	+1.20	2 58.1	21	19 11 23.09	+1.232	22 14 57.3	+1.91	1 13.8
22	18 58 4.67	1.034	22 33 9.5	1.22	2 54.5	22	19 11 52.69	1.236	22 14 11.3	1.93	1 10.3
23	18 58 29.60	1.044	22 32 40.0	1.25	2 51.0	23	19 12 22.38	1.239	22 13 24.8	1.95	1 6.9
24	18 58 54.76	1.053	22 32 9.9	1.27	2 47.5	24	19 12 52.15	1.242	22 12 37.7	1.97	1 3.4
25	18 59 20.13	1.062	22 31 39.3	1.29	2 44.0	25	19 13 21.99	1.245	22 11 50.1	1.99	0 59.9
26	18 59 45.73	+1.071	22 31 8.1	+1.32	2 40.5	26	19 13 51.90	+1.248	22 11 2.1	+2.01	0 56.5
27	19 0 11.54	1.080	22 30 36.3	1.34	2 37.0	27	19 14 21.88	1.251	22 10 13.6	2.03	0 53.1
28	19 0 37.55	1.089	22 30 3.8	1.37	2 33.5	28	19 14 51.93	1.253	22 9 24.6	2.05	0 49.6
29	19 1 3.77	1.097	22 29 30.7	1.39	2 30.0	29	19 15 22.03	1.255	22 8 35.1	2.07	0 46.2
30	19 1 30.20	1.105	22 28 57.1	1.42	2 26.5	30	19 15 52.18	1.257	22 7 45.1	2.09	0 42.8
31	19 1 56.82	+1.113	22 28 22.9	+1.45	2 23.0	31	19 16 22.38	+1.259	22 6 54.6	+2.11	0 39.4
32	19 2 23.63	+1.121	22 27 48.1	+1.47	2 19.5	32	19 16 52.63	+1.261	22 6 3.7	+2.13	0 35.9

Day of the Month.	1st.	9th.	17th.	25th.	Day of the Month.	3d.	11th.	19th.	27th.	35th.
Semidiameter	7.48	7.40	7.33	7.26	Semidiameter	7.21	7.16	7.13	7.10	7.10
Horizontal Parallax . . .	0.85	0.84	0.83	0.82	Hor. Parallax	0.82	0.81	0.81	0.80	0.80

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign — indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

Month and Day.	Apparent Right Ascension.			Var. of R. A. for 1 Day.		Apparent Declination.			Var. of Decl. for 1 Day.		Meridian Passage.
	Noon.			Noon.		Noon.			Noon.		
	h	m	s	s	°	'	"	"		h	m
Jan. 1	16	52	1.05	+ 14.598	22	31	26.3	- 24.23	22	6.8	
5	16	52	58.71	14.224	22	33	1.4	23.31	21	52.0	
9	16	53	54.78	13.804	22	34	32.7	22.33	21	37.2	
13	16	54	49.08	13.336	22	36	0.0	21.31	21	22.4	
17	16	55	41.40	12.817	22	37	23.1	20.23	21	7.5	
21	16	56	31.55	+ 12.249	22	38	41.8	- 19.12	20	52.6	
25	16	57	19.33	11.633	22	39	56.0	17.98	20	37.7	
29	16	58	4.56	10.977	22	41	5.6	16.82	20	22.7	
Feb. 2	16	58	47.10	10.287	22	42	10.5	15.62	20	7.7	
6	16	59	26.81	9.562	22	43	10.5	14.39	19	52.6	
10	17	0	3.55	+ 8.800	22	44	5.6	- 13.16	19	37.5	
14	17	0	37.17	8.005	22	44	55.8	11.92	19	22.3	
18	17	1	7.55	7.178	22	45	41.0	10.67	19	7.1	
22	17	1	34.56	6.323	22	46	21.2	9.41	18	51.8	
26	17	1	58.11	5.448	22	46	56.3	8.14	18	36.4	
Mar. 2	17	2	18.13	+ 4.560	22	47	26.3	- 6.87	18	21.0	
6	17	2	34.58	3.663	22	47	51.3	5.61	18	5.5	
10	17	2	47.42	2.754	22	48	11.2	4.35	17	50.0	
14	17	2	56.60	1.836	22	48	26.1	3.10	17	34.4	
18	17	3	2.10	+ 0.913	22	48	36.0	1.85	17	18.8	
22	17	3	3.91	- 0.007	22	48	40.9	- 0.60	17	3.1	
26	17	3	2.06	0.917	22	48	40.8	+ 0.64	16	47.3	
30	17	2	56.60	1.808	22	48	35.8	1.85	16	31.5	
Apr. 3	17	2	47.62	2.679	22	48	26.0	3.05	16	15.6	
7	17	2	35.20	3.527	22	48	11.4	4.24	15	59.7	
11	17	2	19.44	- 4.350	22	47	52.1	+ 5.39	15	43.7	
15	17	2	0.44	5.146	22	47	28.3	6.51	15	27.6	
19	17	1	38.32	5.905	22	47	0.0	7.61	15	11.5	
23	17	1	13.26	6.617	22	46	27.4	8.66	14	55.4	
27	17	0	45.45	7.280	22	45	50.7	9.68	14	39.2	
May 1	17	0	15.09	- 7.890	22	45	10.0	+ 10.66	14	22.9	
5	16	59	42.40	8.446	22	44	25.5	11.56	14	6.6	
9	16	59	7.59	8.950	22	43	37.6	12.40	13	50.3	
13	16	58	30.88	9.395	22	42	46.4	13.19	13	34.0	
17	16	57	52.51	9.778	22	41	52.2	13.89	13	17.6	
21	16	57	12.75	- 10.090	22	40	55.4	+ 14.50	13	1.2	
25	16	56	31.89	10.328	22	39	56.3	15.04	12	44.8	
29	16	55	50.22	10.497	22	38	55.2	15.48	12	28.4	
June 2	16	55	8.01	10.596	22	37	52.6	15.81	12	12.0	
6	16	54	25.54	10.629	22	36	48.8	16.04	11	55.6	
10	16	53	43.07	- 10.595	22	35	44.4	+ 16.14	11	39.1	
14	16	53	0.88	10.487	22	34	39.8	16.16	11	22.7	
18	16	52	19.27	10.307	22	33	35.3	16.06	11	6.3	
22	16	51	38.52	10.055	22	32	31.5	15.82	10	49.9	
26	16	50	58.92	9.736	22	31	28.9	15.46	10	33.5	
30	16	50	20.71	- 9.357	22	30	28.0	+ 14.98	10	17.1	
July 4	16	49	44.14	- 8.920	22	29	29.2	+ 14.39	10	0.8	
July 4	16	49	44.14	- 8.920	22	29	29.2	+ 14.39	10	0.8	
8	16	49	9.42	8.430	22	28	33.0	13.68	9	44.5	
12	16	48	36.77	7.883	22	27	39.8	12.85	9	28.3	
16	16	48	6.43	7.278	22	26	50.3	11.91	9	12.0	
20	16	47	38.61	6.624	22	26	4.6	10.87	8	55.8	
24	16	47	13.49	- 5.930	22	25	23.3	+ 9.75	8	39.7	
28	16	46	51.22	5.199	22	24	46.7	8.54	8	23.6	
Aug. 1	16	46	31.94	4.436	22	24	15.1	7.25	8	7.6	
5	16	46	15.77	3.646	22	23	48.8	5.88	7	51.6	
9	16	46	2.81	2.828	22	23	28.1	4.46	7	35.7	
13	16	45	53.18	- 1.983	22	23	13.2	+ 2.98	7	19.8	
17	16	45	46.97	1.120	22	23	4.3	+ 1.47	7	3.9	
21	16	45	44.24	- 0.245	22	23	1.5	- 0.07	6	48.2	
25	16	45	45.02	+ 0.635	22	23	4.9	1.62	6	32.5	
29	16	45	49.32	1.515	22	23	14.5	3.17	6	16.8	
Sept. 2	16	45	57.14	+ 2.395	22	23	30.3	- 4.71	6	1.2	
6	16	46	8.48	3.276	22	23	52.2	6.25	5	45.7	
10	16	46	23.34	4.152	22	24	20.3	7.77	5	30.2	
14	16	46	41.68	5.017	22	24	54.3	9.25	5	14.8	
18	16	47	3.46	5.868	22	25	34.2	10.69	4	59.4	
22	16	47	28.60	+ 6.697	22	26	19.7	- 12.05	4	44.1	
26	16	47	57.01	7.504	22	27	10.5	13.36	4	28.8	
30	16	48	28.60	8.287	22	28	6.5	14.60	4	13.7	
Oct. 4	16	49	3.27	9.044	22	29	7.2	15.76	3	58.5	
8	16	49	40.92	9.778	22	30	12.5	16.86	3	43.4	
12	16	50	21.45	+ 10.478	22	31	22.0	- 17.85	3	28.3	
16	16	51	4.70	11.142	22	32	35.2	18.75	3	13.3	
20	16	51	50.54	11.769	22	33	51.9	19.58	2	58.4	
24	16	52	38.81	12.356	22	35	11.7	20.31	2	43.5	
28	16	53	29.33	12.901	22	36	34.3	20.94	2	28.6	
Nov. 1	16	54	21.94	+ 13.494	22	37	59.1	- 21.45	2	13.7	
5	16	55	16.49	13.867	22	39	25.8	21.88	1	58.0	
9	16	56	12.82	14.288	22	40	54.0	22.22	1	44.1	
13	16	57	10.73	14.658	22	42	23.4	22.46	1	29.3	
17	16	58	10.02	14.977	22	43	53.5	22.58	1	14.6	
21	16	59	10.48	+ 15.243	22	45	23.9	- 22.63	0	59.9	
25	17	0	11.90	15.459	22	46	54.4	22.58	0	45.2	
29	17	1	14.09	15.629	22	48	24.4	22.42	0	30.5	
Dec. 3	17	2	16.87	15.751	22	49	53.7	22.21	0	15.8	
7	17	3	20.03	15.821	22	51	22.0	21.91	0	1.1	
11	17	4	23.36	+ 15.835	22	52	49.0	- 21.56	23	42.7	
15	17	5	26.63	15.791	22	54	14.4	21.12	23	28.0	
19	17	6	29.61	15.690	22	55	37.9	20.61	23	13.3	
23	17	7	32.08	15.538	22	56	59.2	20.04	22	58.6	
27	17	8	33.85	15.340	22	58	18.2	19.43	22	43.9	
31	17	9	34.73	+ 15.090	22	59	34.6	- 18.75	22	29.2	
35	17	10	34.50	+ 14.784	23	0	48.2	- 18.04	22	14.5	

Greatest semidiameter,
Least semidiameter,

June 6, 1".85
December 10, 1".67

Greatest horizontal parallax,
Least horizontal parallax

June 6, 0".49
December 10, 0".44

GREENWICH MEAN TIME.

Month and Day.	Apparent Right Ascension.	Var. of R. A. for 1 Day.	Apparent Declination.	Var. of Decl. for 1 Day.	Meridian Passage.	Month and Day.	Apparent Right Ascension.	Var. of R. A. for 1 Day.	Apparent Declination.	Var. of Decl. for 1 Day.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"			h m s	s	° ' "	"	
Jan. 1	5 49 13.05	-7.124	+22 10 43.1	-0.76	11 5.6	July 4	5 57 36.92	+9.486	+22 18 15.0	+0.56	23 6.8
5	5 48 44.86	6.957	22 10 40.3	0.61	10 49.4	8	5 58 14.63	9.364	22 18 16.7	+0.27	22 51.7
9	5 48 17.44	6.747	22 10 38.2	0.42	10 33.2	12	5 58 51.79	9.212	22 18 17.2	-0.01	22 36.6
13	5 47 50.95	6.490	22 10 36.9	0.22	10 17.0	16	5 59 28.28	9.025	22 18 16.6	0.29	22 21.4
17	5 47 25.58	6.191	22 10 36.4	-0.02	10 0.9	20	6 0 3.94	8.807	22 18 14.9	0.55	22 6.3
21	5 47 1.48	-5.847	+22 10 36.7	+0.17	9 44.8	24	6 0 38.68	+8.556	+22 18 12.2	-0.79	21 51.1
25	5 46 38.85	5.464	22 10 37.7	0.36	9 28.7	28	6 1 12.35	8.276	22 18 8.6	1.01	21 35.9
29	5 46 17.80	5.047	22 10 39.6	0.60	9 12.6	Aug. 1	6 1 44.85	7.969	22 18 4.1	1.24	21 20.7
Feb. 2	5 45 58.49	4.603	22 10 42.5	0.85	8 56.6	5	6 2 16.07	7.637	22 17 58.7	1.44	21 5.5
6	5 45 41.01	4.131	22 10 46.4	1.10	8 40.5	9	6 2 45.91	7.276	22 17 52.6	1.61	20 50.3
10	5 45 25.48	-3.631	+22 10 51.3	+1.35	8 24.6	13	6 3 14.24	+6.885	+22 17 45.8	-1.77	20 35.0
14	5 45 11.99	3.108	22 10 57.2	1.60	8 8.6	17	6 3 40.96	6.470	22 17 38.4	1.91	20 19.7
18	5 45 0.64	2.564	22 11 4.1	1.86	7 52.7	21	6 4 5.97	6.032	22 17 30.5	2.04	20 4.4
22	5 44 51.50	2.002	22 11 12.1	2.12	7 36.8	25	6 4 29.19	5.574	22 17 22.2	2.13	19 49.1
26	5 44 44.64	1.428	22 11 21.1	2.39	7 20.9	29	6 4 50.53	5.092	22 17 13.5	2.20	19 33.7
Mar. 2	5 44 40.09	-0.847	+22 11 31.2	+2.64	7 5.2	Sept. 2	6 5 9.90	+4.588	+22 17 4.6	-2.24	19 18.3
6	5 44 37.88	-0.259	22 11 42.2	2.87	6 49.4	6	6 5 27.21	4.066	22 16 55.6	2.26	19 2.9
10	5 44 38.02	+0.330	22 11 54.2	3.11	6 33.7	10	6 5 42.41	3.531	22 16 46.5	2.27	18 47.4
14	5 44 40.52	0.920	22 12 7.1	3.34	6 18.0	14	6 5 55.44	2.982	22 16 37.4	2.26	18 31.8
18	5 44 45.38	1.510	22 12 20.9	3.54	6 2.4	18	6 6 6.25	2.419	22 16 28.4	2.23	18 16.3
22	5 44 52.60	+2.097	+22 12 35.4	+3.73	5 46.8	22	6 6 14.78	+1.846	+22 16 19.6	-2.18	18 0.7
26	5 45 2.14	2.673	22 12 50.5	3.86	5 31.2	26	6 6 21.01	1.269	22 16 11.0	2.11	17 45.1
30	5 45 13.97	3.236	22 13 6.3	4.02	5 15.7	30	6 6 24.93	0.691	22 16 2.8	2.01	17 29.4
Apr. 3	5 45 28.01	3.784	22 13 22.7	4.15	5 0.2	Oct. 4	6 6 26.53	+0.107	22 15 54.9	1.92	17 13.7
7	5 45 44.22	4.316	22 13 39.5	4.22	4 44.7	8	6 6 25.79	-0.474	22 15 47.4	1.81	16 57.9
11	5 46 2.52	+4.834	+22 13 56.5	+4.27	4 29.3	12	6 6 22.72	-1.057	+22 15 40.4	-1.69	16 42.2
15	5 46 22.87	5.335	22 14 13.7	4.34	4 13.9	16	6 6 17.33	1.634	22 15 33.9	1.55	16 26.3
19	5 46 45.17	5.815	22 14 31.1	4.35	3 58.5	20	6 6 9.67	2.195	22 15 28.0	1.41	16 10.5
23	5 47 9.36	6.272	22 14 48.5	4.35	3 43.2	24	6 5 59.79	2.742	22 15 22.6	1.27	15 54.6
27	5 47 35.31	6.701	22 15 5.9	4.31	3 27.9	28	6 5 47.76	3.272	22 15 17.8	1.14	15 38.7
May 1	5 48 2.93	+7.103	+22 15 23.0	+4.25	3 12.6	Nov. 1	6 5 33.64	-3.782	+22 15 13.5	-1.00	15 22.7
5	5 48 32.10	7.479	22 15 39.8	4.15	2 57.4	5	6 5 17.53	4.273	22 15 9.8	0.85	15 6.7
9	5 49 2.73	7.829	22 15 56.1	4.01	2 42.2	9	6 4 59.49	4.739	22 15 6.7	0.70	14 50.6
13	5 49 34.70	8.153	22 16 11.9	3.86	2 27.0	13	6 4 39.66	5.174	22 15 4.2	0.56	14 34.6
17	5 50 7.92	8.449	22 16 27.0	3.70	2 11.8	17	6 4 18.14	5.578	22 15 2.2	0.41	14 18.5
21	5 50 42.25	+8.712	+22 16 41.5	+3.52	1 56.7	21	6 3 55.09	-5.942	+22 15 0.8	-0.29	14 2.4
25	5 51 17.57	8.942	22 16 55.2	3.31	1 41.5	25	6 3 30.66	6.267	22 14 59.9	0.17	13 46.2
29	5 51 53.74	9.139	22 17 8.0	3.09	1 26.4	29	6 3 5.00	6.557	22 14 59.4	-0.05	13 30.1
June 2	5 52 30.64	9.305	22 17 19.9	2.85	1 11.3	Dec. 3	6 2 38.26	6.806	22 14 59.5	+0.07	13 13.9
6	5 53 8.14	9.443	22 17 30.7	2.56	0 56.2	7	6 2 10.61	7.033	22 15 0.0	0.19	12 57.7
10	5 53 46.14	+9.549	+22 17 40.4	+2.30	0 41.1	11	6 1 42.22	-7.172	+22 15 1.0	+0.30	12 41.5
14	5 54 24.49	9.622	22 17 49.1	2.02	0 26.0	15	6 1 13.30	7.280	22 15 2.4	0.40	12 25.3
18	5 55 3.07	9.662	22 17 56.6	1.74	0 10.9	19	6 0 44.04	7.342	22 15 4.2	0.51	12 9.1
22	5 55 41.74	9.665	22 18 3.0	1.45	23 52.0	23	6 0 14.63	7.354	22 15 6.5	0.61	11 52.9
26	5 56 20.35	9.637	22 18 8.2	1.15	23 37.0	27	5 59 45.27	7.321	22 15 9.1	0.71	11 36.7
30	5 56 58.79	+9.577	+22 18 12.2	+0.85	23 21.9	31	5 59 16.12	-7.244	+22 15 12.2	+0.82	11 20.5
July 4	5 57 36.92	+9.486	+22 18 15.0	+0.56	23 6.8	35	5 58 47.39	-7.114	+22 15 15.7	+0.92	11 4.3

Least semidiameter,
Greatest semidiameter,

June 21, 1^m.25
December 21, 1^m.33

Least horizontal parallax,
Greatest horizontal parallax,

June 21, 0^m.28
December 21, 0^m.30

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
	°	'	"			°	'	"			Noon.	Midnight.
Jan. 0	239	32	29.6	+ 2 47 37.6	+ 5 24.6	- 1 30	32.4	- 20 5.8	9.6645471	0.1367348	0.1379742	
1	242	19	35.6	2 46 36.4	6 31.3	1 50	27.4	19 43.9	9.6659474	0.1391663	0.1403118	
2	245	5	46.7	2 45 48.1	7 33.7	2 9	59.9	19 21.0	9.6670859	0.1414112	0.1424650	
3	247	51	16.0	2 45 12.5	8 32.0	2 29	8.9	18 56.9	9.6679628	0.1434737	0.1444381	
4	250	36	15.8	2 44 49.3	9 25.2	2 47	53.3	18 31.8	9.6685792	0.1453586	0.1462355	
5	253	20	58.7	+ 2 44 38.5	+ 10 13.1	- 3 6	12.1	18 5.6	9.6689354	0.1470692	0.1478601	
6	256	5	37.0	2 44 40.0	10 55.3	3 24	4.2	17 38.4	9.6690314	0.1486085	0.1493147	
7	258	50	22.9	2 44 53.7	11 31.4	3 41	28.4	17 9.9	9.6688675	0.1499789	0.1506015	
8	261	35	28.5	2 45 19.6	12 1.3	3 58	23.6	16 40.1	9.6684436	0.1511825	0.1517222	
9	264	21	6.1	2 45 57.7	12 24.5	4 14	48.3	16 9.0	9.6677591	0.1522206	0.1526780	
10	267	7	28.0	+ 2 46 48.2	+ 12 40.8	- 4 30	41.1	- 15 36.4	9.6668140	0.1530943	0.1534694	
11	269	54	46.7	2 47 51.3	12 50.1	4 46	0.5	15 2.1	9.6656073	0.1538033	0.1540963	
12	272	43	14.8	2 49 7.0	12 52.0	5 0	44.7	14 26.0	9.6641385	0.1543482	0.1545587	
13	275	33	5.2	2 50 35.8	12 46.5	5 14	51.8	13 47.9	9.6624066	0.1547278	0.1548553	
14	278	24	31.0	2 52 18.0	12 33.3	5 28	19.7	13 7.6	9.6604106	0.1549409	0.1549847	
15	281	17	45.7	+ 2 54 13.7	+ 12 12.4	- 5 41	6.2	- 12 24.9	9.6581498	0.1549861	0.1549447	
16	284	13	3.2	2 56 23.6	11 43.7	5 53	8.6	11 39.5	9.6556231	0.1548602	0.1547324	
17	287	10	37.7	2 58 48.0	11 7.3	6 4	24.1	10 51.1	9.6528293	0.1545607	0.1543446	
18	290	10	44.2	3 1 27.4	10 23.1	6 14	49.8	9 59.5	9.6497679	0.1540835	0.1537770	
19	293	13	37.8	3 4 22.5	9 31.2	6 24	22.0	9 4.3	9.6464379	0.1534243	0.1530248	
20	296	19	34.6	+ 3 7 33.7	+ 8 31.9	- 6 32	57.1	- 8 5.2	9.6428391	0.1525778	0.1520826	
21	299	28	50.9	3 11 1.8	7 25.5	6 40	31.0	7 1.8	9.6389716	0.1515383	0.1509440	
22	302	41	44.0	3 14 47.4	6 12.3	6 46	59.1	5 53.6	9.6348358	0.1502988	0.1496021	
23	305	58	31.7	3 18 51.1	4 52.8	6 52	16.4	4 40.2	9.6304332	0.1488525	0.1480488	
24	309	19	32.6	3 23 13.8	3 27.8	6 56	17.5	3 21.1	9.6257657	0.1471900	0.1462750	
25	312	45	5.9	+ 3 27 56.1	+ 1 57.9	- 6 58	56.6	- 1 56.0	9.6208367	0.1453023	0.1442706	
26	316	15	31.7	3 32 58.7	+ 0 24.1	7 0	7.4	- 0 24.3	9.6156506	0.1431784	0.1420245	
27	319	51	10.4	3 38 22.3	- 1 12.3	6 59	42.9	+ 1 14.5	9.6102137	0.1408072	0.1395249	
28	323	32	23.5	3 44 7.5	2 50.0	6 57	35.8	3 0.9	9.6045342	0.1381757	0.1367580	
29	327	19	32.8	3 50 14.8	4 27.4	6 53	38.4	4 55.2	9.5986228	0.1352697	0.1337090	
30	331	13	0.5	+ 3 56 44.4	- 6 2.7	- 6 47	42.6	+ 6 57.9	9.5924928	0.1320738	0.1303622	
31	335	13	9.1	4 3 36.7	7 33.8	6 39	39.8	9 9.1	9.5861610	0.1285717	0.1266999	
Feb. 1	339	20	21.2	4 10 51.4	8 58.5	6 29	21.4	11 29.1	9.5796479	0.1247446	0.1227035	
2	343	34	59.0	4 18 27.9	10 14.1	6 16	38.8	13 57.6	9.5729784	0.1205738	0.1183528	
3	347	57	24.0	4 26 25.6	11 18.1	6 1	23.5	16 34.3	9.5661831	0.1160378	0.1136263	
4	352	27	56.7	+ 4 34 42.9	- 12 7.6	- 5 43	27.7	+ 19 18.5	9.5592973	0.1111152	0.1085016	
5	357	6	55.7	4 43 17.8	12 39.8	5 22	44.3	22 9.1	9.5523632	0.1057826	0.1029551	
6	1 54	37.3	4 52 7.5	4 52 7.5	12 52.2	4 59	7.9	25 4.4	9.5454296	0.1000161	0.0969627	
7	6 51	14.3	5 1 8.2	5 1 8.2	12 42.4	4 32	34.9	28 2.0	9.5385526	0.0937917	0.0905000	
8	11 56	55.7	5 10 15.3	5 10 15.3	12 8.5	4 3	4.2	30 58.9	9.5317953	0.0870847	0.0835428	
9	17 11	45.0	+ 5 19 23.0	+ 5 19 23.0	- 11 9.5	- 3 30	38.4	+ 33 51.6	9.5252283	0.0798715	0.0760680	
10	22 35	39.4	5 28 24.3	5 28 24.3	9 45.4	2 55	23.9	36 35.5	9.5189285	0.0721299	0.0680546	
11	28 8	28.8	5 37 11.4	5 37 11.4	7 57.2	2 17	31.9	39 5.7	9.5129785	0.0638401	0.0594843	
12	33 49	54.3	5 45 35.1	5 45 35.1	5 47.6	1 37	19.0	41 16.4	9.5074649	0.0549854	0.0503423	
13	39 39	27.8	5 53 25.5	5 53 25.5	3 20.6	0 55	7.5	43 1.8	9.5024755	0.0455542	0.0406204	
14	45 36	30.6	+ 6 0 32.1	+ 6 0 32.1	- 0 41.9	- 0 11	25.7	+ 44 16.1	9.4980966	0.0355410	0.0303165	
15	51 40	13.8	+ 6 6 44.2	+ 6 6 44.2	+ 2 1.5	+ 0 33	12.8	+ 44 54.2	9.4944103	0.0249480	0.0194371	

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							Noon.	Midnight.
Feb. 15	51 40 13.8	+ 6 6 44.2	+ 2 1.5	+ 0 33 12.8	+ 44 54.2	9.4944103	0.0249480	0.0194371
16	57 49 37.5	6 11 51.6	4 41.9	1 18 9.4	44 51.8	9.4914897	0.0137865	0.0079990
17	64 3 32.3	6 15 44.8	7 10.9	2 2 42.2	44 6.3	9.4893962	0.0020787	0.9960302
18	70 20 39.9	6 18 16.1	9 20.4	2 46 7.4	42 36.7	9.4881752	0.9898590	0.9835712
19	76 39 35.3	6 19 19.6	11 3.2	3 27 41.3	40 24.3	9.4878540	0.9771744	0.9706765
20	82 58 48.9	+ 6 18 52.4	+ 12 13.8	+ 4 6 42.9	+ 37 32.5	9.4884394	0.9640867	0.9574149
21	89 16 49.9	6 16 54.6	12 48.6	4 42 35.0	34 6.5	9.4899184	0.9506720	0.9438696
22	95 32 8.6	6 13 28.6	12 46.5	5 14 46.8	30 13.1	9.4922588	0.9370207	0.9301388
23	101 43 19.8	6 8 40.5	12 8.7	5 42 54.6	25 59.8	9.4954097	0.9232382	0.9163342
24	107 49 5.0	6 2 38.4	10 58.4	6 6 42.6	21 34.8	9.4993061	0.9094426	0.9025799
25	113 48 15.1	+ 5 55 32.1	+ 9 20.7	+ 6 26 2.9	+ 17 5.6	9.5038718	0.8957636	0.8890117
26	119 39 51.4	5 47 32.7	7 21.5	6 40 55.1	12 39.7	9.5090230	0.8823423	0.8757740
27	125 23 6.6	5 38 51.8	5 7.4	6 51 25.1	8 22.4	9.5146730	0.8663257	0.8630165
28	130 57 25.0	5 29 41.0	2 45.3	6 57 44.2	4 18.7	9.5207338	0.8568653	0.8508913
Mar. 1	136 22 22.2	5 20 11.0	+ 0 21.1	7 0 8.1	+ 0 31.9	9.5271197	0.8451127	0.8395480
2	141 37 43.9	+ 5 10 31.7	- 1 59.5	+ 6 58 54.5	- 2 55.7	9.5337499	0.8342142	0.8291285
3	146 43 25.3	5 0 51.6	4 12.2	6 54 23.4	6 3.1	9.5405492	0.8243062	0.8197627
4	151 39 29.2	4 51 17.9	6 13.1	6 46 55.2	8 50.0	9.5474491	0.8155109	0.8115627
5	156 26 5.1	4 41 56.5	7 59.8	6 36 50.2	11 16.8	9.5543886	0.8079284	0.8046169
6	161 3 27.9	4 32 52.1	9 30.6	6 24 27.9	13 24.5	9.5613135	0.8016351	0.7989881
7	165 31 56.1	+ 4 24 8.1	- 10 44.5	+ 6 10 7.0	- 15 14.4	9.5681771	0.7966791	0.7947094
8	169 51 51.7	4 15 47.1	11 41.1	5 54 4.6	16 47.8	9.5749392	0.7930788	0.7917849
9	174 3 38.4	4 7 50.6	12 20.8	5 36 36.4	18 6.3	9.5815658	0.7908237	0.7901893
10	178 7 41.3	4 0 19.5	12 44.2	5 17 56.5	19 11.4	9.5880284	0.7898747	0.7898717
11	182 4 26.3	3 53 14.4	12 52.2	4 58 17.6	20 4.6	9.5943032	0.7901701	0.7907588
12	185 54 18.8	+ 3 46 35.2	- 12 46.0	+ 4 37 50.9	- 20 47.3	9.6003711	0.7916265	0.7927608
13	189 37 45.0	3 40 21.5	12 26.9	4 16 46.2	21 20.8	9.6062161	0.7941485	0.7957760
14	193 15 10.1	3 34 32.7	11 56.1	3 55 12.1	21 46.2	9.6118260	0.7976297	0.7996957
15	196 46 58.5	3 29 8.1	11 15.0	3 33 16.1	22 4.6	9.6171904	0.8019603	0.8044096
16	200 13 34.1	3 24 6.9	10 25.1	3 11 4.8	22 17.0	9.6223021	0.8070300	0.8098083
17	203 35 19.8	+ 3 19 28.1	- 9 27.5	+ 2 48 43.8	- 22 24.2	9.6271553	0.8127319	0.8157881
18	206 52 37.4	3 15 10.7	8 23.6	2 26 18.0	22 26.9	9.6317460	0.8189650	0.8222511
19	210 5 48.1	3 11 13.9	7 14.6	2 3 51.4	22 25.6	9.6360710	0.8256358	0.8291088
20	213 15 11.7	3 7 36.7	6 1.5	1 41 27.9	22 21.0	9.6401286	0.8326604	0.8362813
21	216 21 7.6	3 4 18.1	4 45.5	1 19 10.4	22 13.5	9.6439178	0.8399629	0.8436972
22	219 23 54.0	+ 3 1 17.6	- 3 27.4	+ 0 57 1.7	- 22 3.5	9.6474380	0.8474765	0.8512945
23	222 23 48.5	2 58 34.1	2 8.3	0 35 4.0	21 51.5	9.6506895	0.8551443	0.8590199
24	225 21 7.7	2 56 6.9	- 0 48.9	+ 0 13 19.5	21 37.3	9.6536729	0.8629157	0.8668269
25	228 16 7.6	2 53 55.5	+ 0 30.0	- 0 8 10.1	21 21.6	9.6563887	0.8707490	0.8746777
26	231 9 3.7	2 51 59.2	1 47.6	0 29 23.2	21 4.4	9.6588377	0.8786089	0.8825388
27	234 0 10.8	+ 2 50 17.4	+ 3 3.4	- 0 50 18.4	- 20 45.8	9.6610211	0.8864644	0.8903830
28	236 49 43.2	2 48 49.6	4 16.6	1 10 54.4	20 26.1	9.6629399	0.8942918	0.8981884
29	239 37 54.6	2 47 35.5	5 26.8	1 31 10.2	20 5.2	9.6645950	0.9020705	0.9059362
30	242 24 58.6	2 46 34.7	6 33.3	1 51 4.4	19 43.2	9.6659871	0.9097839	0.9136119
31	245 11 8.3	2 45 46.8	7 35.8	2 10 36.2	19 20.2	9.6671176	0.9174189	0.9212037
Apr. 1	247 56 36.4	+ 2 45 11.5	+ 8 33.8	- 2 29 44.4	- 18 56.1	9.6679865	0.9249652	0.9287021
2	250 41 35.5	+ 2 44 48.8	+ 9 26.8	- 2 48 28.0	- 18 31.0	9.6685949	0.9324140	0.9360999

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
											Noon.	Midnight.
Apr.	1	247	56 36.4	+ 2 45 11.5	+ 8 33.8	- 2 29 44.4	- 18 56.1	9.6679865	9.9249652	9.9287021		
	2	250	41 35.5	2 44 48.8	9 26.8	2 48 28.0	18 31.0	9.6685949	9.9324140	9.9360999		
	3	253	26 18.0	2 44 38.4	10 14.5	3 6 46.0	18 4.8	9.6689429	9.9397595	9.9433919		
	4	256	10 56.3	2 44 40.2	10 56.5	3 24 37.3	17 37.5	9.6690309	9.9469969	9.9505739		
	5	258	55 42.6	2 44 54.3	11 32.4	3 42 0.6	17 9.0	9.6688589	9.9541229	9.9576434		
	6	261	40 48.9	+ 2 45 20.5	+ 12 2.1	- 3 58 54.8	16 39.2	9.6684269	9.9611352	9.9645982		
	7	264	26 27.6	2 45 59.0	12 25.1	4 15 18.5	16 8.0	9.6677345	9.9680324	9.9714376		
	8	267	12 51.1	2 46 50.0	12 41.2	4 31 10.3	15 35.3	9.6667812	9.9748137	9.9781607		
	9	270	0 11.7	2 47 53.4	12 50.3	4 46 28.6	15 1.0	9.6655663	9.9814786	9.9847675		
	10	272	48 42.1	2 49 9.6	12 52.0	5 1 11.7	14 24.8	9.6640894	9.9880274	9.9912583		
	11	275	38 35.2	+ 2 50 38.8	+ 12 46.2	- 5 15 17.6	- 13 46.7	9.6623493	9.9944602	9.9976331		
	12	278	30 4.2	2 52 21.3	12 32.8	5 28 44.3	13 6.3	9.6603452	0.0007772	0.0038926		
	13	281	23 22.4	2 54 17.5	12 11.6	5 41 29.4	12 23.5	9.6580761	0.0069792	0.0100371		
	14	284	18 43.9	2 56 27.8	11 42.7	5 53 30.4	11 38.0	9.6555410	0.0130663	0.0160668		
	15	287	16 22.9	2 58 52.7	11 6.0	6 4 44.5	10 49.6	9.6527389	0.0190386	0.0219819		
	16	290	16 34.3	+ 3 1 32.6	+ 10 21.5	- 6 15 8.5	9 57.9	9.6496690	0.0248965	0.0277823		
	17	293	19 33.3	3 4 28.1	9 29.5	6 24 39.0	9 2.6	9.6463306	0.0306393	0.0334675		
	18	296	25 36.0	3 7 39.9	8 30.0	6 33 12.2	8 3.3	9.6427234	0.0362666	0.0390366		
	19	299	34 58.8	3 11 8.5	7 23.3	6 40 44.1	6 59.7	9.6388475	0.0417774	0.0444888		
	20	302	47 58.9	3 14 54.6	6 9.9	6 47 10.1	5 51.3	9.6347034	0.0471705	0.0498221		
	21	306	4 54.2	+ 3 18 59.0	+ 4 50.3	- 6 52 25.1	- 4 37.8	9.6302925	0.0524434	0.0550341		
	22	309	26 3.2	3 23 22.3	3 25.0	6 56 23.8	3 18.5	9.6256168	0.0575937	0.0601217		
	23	312	51 45.3	3 28 5.2	1 55.0	6 59 0.1	1 53.3	9.6206797	0.0626179	0.0650817		
	24	316	22 20.4	3 33 8.5	+ 0 21.2	7 0 8.1	- 0 21.4	9.6154856	0.0675123	0.0699091		
	25	319	58 9.2	3 38 32.7	- 1 15.3	6 59 40.5	+ 1 17.7	9.6100409	0.0722713	0.0745982		
	26	323	39 33.1	+ 3 44 18.6	- 2 53.0	- 6 57 30.1	+ 3 4.3	9.6043539	0.0768890	0.0791429		
	27	327	26 53.8	3 50 26.5	4 30.4	6 53 29.2	4 58.9	9.5984354	0.0813587	0.0835354		
	28	331	20 33.6	3 56 56.9	6 5.6	6 47 29.5	7 1.8	9.5922988	0.0856719	0.0877670		
	29	335	20 55.1	4 3 49.8	7 36.6	6 39 22.6	9 13.3	9.5859608	0.0898193	0.0918274		
	30	339	28 20.7	4 11 5.2	9 1.0	6 28 59.8	11 33.6	9.5794422	0.0937898	0.0957051		
May	1	343	43 12.8	+ 4 18 42.5	- 10 16.3	- 6 16 12.6	+ 14 2.3	9.5727682	0.0975715	0.0993882		
	2	348	5 52.7	4 26 40.8	11 19.8	6 0 52.4	16 39.3	9.5659691	0.1011515	0.1028609		
	3	352	36 40.9	4 34 58.7	12 8.8	5 42 51.5	19 23.8	9.5590810	0.1045139	0.1061086		
	4	357	15 56.0	4 43 34.2	12 40.5	5 22 2.8	22 14.5	9.5521459	0.1076426	0.1091137		
	5	2	3 54.1	4 52 24.3	12 52.2	4 58 21.0	25 9.9	9.5452132	0.1105194	0.1118573		
	6	7	0 48.1	+ 5 1 25.2	- 12 41.7	- 4 31 42.4	+ 28 7.5	9.5383386	0.1131249	0.1143196		
	7	12	6 46.6	5 10 32.4	12 7.1	4 2 6.2	31 4.4	9.5315861	0.1154386	0.1164791		
	8	17	21 53.1	5 19 40.0	11 7.3	3 29 35.0	33 56.9	9.5250261	0.1174384	0.1183139		
	9	22	46 4.5	5 28 41.1	9 42.4	2 54 15.4	36 40.5	9.5187357	0.1191025	0.1198010		
	10	28	19 10.4	5 37 27.6	7 53.5	2 16 18.6	39 10.1	9.5127980	0.1204069	0.1209174		
	11	34	0 51.8	+ 5 45 50.4	- 5 43.3	- 1 36 1.6	+ 41 20.1	9.5072992	0.1213296	0.1216406		
	12	39	50 40.1	5 53 39.6	3 15.9	0 53 46.9	43 4.6	9.5023273	0.1218480	0.1219491		
	13	45	47 56.3	6 0 44.7	- 0 36.9	- 0 10 2.7	44 17.9	9.4979688	0.1219416	0.1218230		
	14	51	51 51.2	6 6 55.0	+ 2 6.7	+ 0 34 36.9	44 54.8	9.4943053	0.1215914	0.1212447		
	15	58	1 24.7	6 12 0.2	4 46.8	1 19 33.4	44 51.1	9.4914096	0.1207815	0.1202002		
	16	64	15 26.9	+ 6 15 51.0	+ 7 15.3	+ 2 4 4.8	+ 44 4.2	9.4893426	0.1194998	0.1186790		
	17	70	32 39.3	+ 6 18 19.6	+ 9 24.1	+ 2 47 27.2	+ 42 33.2	9.4881493	0.1177376	0.1166749		

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
	°	'	"			°	'	"			Noon.	Midnight.
May 16	64	15	26.9	+ 6 15 51.0	+ 7 15.3	+ 2	4	4.8	+ 44 4.2	9.4893426	0.1194998	0.1186790
17	70	32	39.3	6 18 19.6	9 24.1	2	47	27.2	42 33.2	9.4881493	0.1177376	0.1166749
18	76	51	36.8	6 19 20.3	11 6.0	3	28	57.0	40 19.5	9.4878562	0.1154912	0.1141863
19	83	10	49.7	6 18 50.3	12 15.4	4	7	53.2	37 26.6	9.4884700	0.1127613	0.1112166
20	89	28	47.2	6 16 49.6	12 49.1	4	43	38.9	33 59.6	9.4899769	0.1095538	0.1077738
21	95	43	59.6	+ 6 13 20.9	+ 12 45.9	+ 5	15	43.4	+ 30 5.4	9.4923434	0.1058786	0.1038698
22	101	55	1.8	6 8 30.4	12 7.0	5	43	43.2	25 51.7	9.4955186	0.1017499	0.0995209
23	108	0	35.9	6 2 26.1	10 55.8	6	7	22.9	21 26.4	9.4994372	0.0971856	0.0947464
24	113	59	32.8	5 55 18.0	9 17.2	6	26	34.8	16 57.4	9.5040226	0.0922062	0.0895678
25	119	50	54.2	5 47 17.1	7 17.5	6	41	18.7	12 31.5	9.5091911	0.0868344	0.0840090
26	125	33	53.2	+ 5 38 35.1	+ 5 3.1	+ 6	51	40.7	+ 8 14.6	9.5148555	0.0810947	0.0780943
27	131	7	54.6	5 29 23.5	2 40.8	6	57	52.3	4 11.3	9.5209279	0.0750110	0.0718481
28	136	32	34.0	5 19 53.1	+ 0 16.7	7	0	9.0	+ 0 25.2	9.5273230	0.0686086	0.0652955
29	141	47	37.7	5 10 13.6	- 2 3.8	6	58	48.9	- 3 1.8	9.5339597	0.0619117	0.0584604
30	146	53	0.9	5 0 33.5	4 16.1	6	54	12.0	6 8.6	9.5407632	0.0549442	0.0513659
31	151	48	46.9	+ 4 51 0.1	- 6 16.7	+ 6	46	38.5	- 8 54.9	9.5476652	0.0477282	0.0440340
June 1	156	35	5.3	4 41 39.2	8 2.9	6	36	28.9	11 21.1	9.5546050	0.0402855	0.0364854
2	161	12	11.0	4 32 35.4	9 33.2	6	24	2.7	13 28.2	9.5615287	0.0326358	0.0287394
3	165	40	22.9	4 23 52.1	10 46.5	6	9	38.3	15 17.6	9.5683898	0.0247987	0.0208140
4	170	0	2.8	4 15 31.8	11 42.6	5	53	33.0	16 50.5	9.5751483	0.0167893	0.0127260
5	174	11	34.6	+ 4 7 36.0	- 12 21.8	+ 5	36	2.3	- 18 8.5	9.5817704	0.0086260	0.0044910
6	178	15	23.4	4 0 5.8	12 44.7	5	17	20.4	19 13.2	9.5882275	0.0003229	9.9961234
7	182	11	54.9	3 53 1.5	12 52.2	4	57	39.8	20 6.1	9.5944963	9.9918941	9.9876366
8	186	1	35.1	3 46 23.1	12 45.6	4	37	11.7	20 48.5	9.6005574	9.9833525	9.9790434
9	189	44	49.7	3 40 10.2	12 26.1	4	16	6.0	21 21.7	9.6063952	9.9747107	9.9703559
10	193	22	3.8	+ 3 34 22.2	- 11 55.0	+ 3	54	31.1	- 21 46.9	9.6119974	9.9659804	9.9615858
11	196	53	42.1	3 28 58.4	11 13.6	3	32	34.6	22 5.1	9.6173543	9.9571733	9.9527444
12	200	20	8.3	3 23 57.8	10 23.4	3	10	22.9	22 17.3	9.6224580	9.9483004	9.9438429
13	203	41	45.2	3 19 19.7	9 25.6	2	48	1.7	22 24.3	9.6273029	9.9393733	9.9348930
14	206	58	54.8	3 15 3.0	8 21.4	2	25	35.7	22 26.9	9.6318851	9.9304034	9.9259061
15	210	11	58.0	+ 3 11 6.8	- 7 12.4	+ 2	3	9.2	- 22 25.5	9.6362018	9.9214026	9.9168946
16	213	21	14.9	3 7 30.2	5 59.2	1	40	45.8	22 20.8	9.6402509	9.9123837	9.9078717
17	216	27	4.6	3 4 12.3	4 43.1	1	18	28.6	22 13.3	9.6440317	9.9033603	9.8988512
18	219	29	45.4	3 1 12.2	3 25.0	0	56	20.2	22 3.2	9.6475437	9.8943467	9.8898486
19	222	29	34.7	2 58 29.2	2 5.8	0	34	22.9	21 51.0	9.6507868	9.8853594	9.8808810
20	225	26	40.3	+ 2 56 2.6	- 0 46.4	+ 0	12	38.8	- 21 36.9	9.6537617	9.8764161	9.8719668
21	228	21	45.2	2 53 51.6	+ 0 32.4	- 0	8	50.2	21 21.1	9.6564691	9.8675360	9.8631263
22	231	14	37.7	2 51 55.8	1 50.0	0	30	2.8	21 3.8	9.6589099	9.8587410	9.8543829
23	234	5	41.6	2 50 14.4	3 5.7	0	50	57.5	20 45.2	9.6610849	9.8500554	9.8457617
24	236	55	11.2	2 48 47.1	4 18.8	1	11	32.9	20 25.4	9.6629954	9.8415057	9.8372910
25	239	43	20.4	+ 2 47 33.4	+ 5 28.9	- 1	31	48.0	- 20 4.5	9.6646420	9.8331216	9.8290015
26	242	30	22.5	2 46 33.0	6 35.4	1	51	41.5	19 42.5	9.6660261	9.8249352	9.8209270
27	245	16	30.7	2 45 45.5	7 37.7	2	11	12.6	19 19.4	9.6671482	9.8169822	9.8131055
28	248	1	57.7	2 45 10.6	8 35.5	2	30	20.1	18 55.3	9.6680091	9.8093023	9.8055775
29	250	46	56.2	2 44 48.3	9 28.4	2	49	2.9	18 30.2	9.6686092	9.8019371	9.7983865
30	253	31	38.4	+ 2 44 38.3	+ 10 15.9	- 3	7	20.1	- 18 4.0	9.6689493	9.7949320	9.7915796
July 1	256	16	16.8	+ 2 44 40.5	+ 10 57.7	- 3	25	10.5	- 17 36.6	9.6690293	9.7883357	9.7852067

MERCURY.									
GREENWICH MEAN NOON.									
Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—		
							Noon.	Midnight.	
July	1 256 16 16.8	+ 2 44 40.5	+ 10 57.7	- 3 25 10.5	- 17 36.6	9.6690293	9.7883357	9.7852067	
	2 259 1 3.5	2 44 54.9	11 33.5	3 42 32.9	17 8.1	9.6688492	9.7821993	9.7793199	
	3 261 46 10.7	2 45 21.6	12 2.9	3 59 26.2	16 38.2	9.6684090	9.7765754	9.7739729	
	4 264 31 50.7	2 46 0.5	12 25.7	4 15 48.9	16 7.0	9.6677082	9.7715190	9.7692204	
	5 267 18 15.8	2 46 51.8	12 41.6	4 31 39.6	15 34.3	9.6667468	9.7670840	9.7651169	
	6 270 5 38.5	+ 2 47 55.6	+ 12 50.4	- 4 46 56.9	- 14 59.9	9.6655237	9.7633253	9.7617154	
	7 272 54 11.3	2 49 12.2	12 51.9	5 1 38.8	14 23.6	9.6640387	9.7602937	9.7590665	
	8 275 44 7.2	2 50 41.8	12 45.9	5 15 43.5	13 45.4	9.6622903	9.7580391	9.7572169	
	9 278 35 39.4	2 52 24.8	12 32.2	5 29 9.0	13 5.0	9.6602780	9.7566046	9.7562071	
	10 281 29 1.4	2 54 21.4	12 10.9	5 41 52.7	12 22.1	9.6580007	9.7560283	9.7560717	
	11 284 24 27.0	+ 2 56 32.2	+ 11 41.7	- 5 53 52.3	- 11 36.5	9.6554572	9.7563404	9.7568368	
	12 287 22 10.6	2 58 57.5	11 4.7	6 5 4.8	10 48.0	9.6526468	9.7575626	9.7585192	
	13 290 22 27.0	3 1 37.9	10 20.0	6 15 27.2	9 56.2	9.6495688	9.7597071	9.7611262	
	14 293 25 31.5	3 4 33.9	9 27.7	6 24 56.0	9 0.8	9.6462221	9.7627757	9.7646546	
	15 296 31 40.2	3 7 46.2	8 28.0	6 33 27.4	8 1.4	9.6426066	9.7667606	9.7690913	
	16 299 41 9.5	+ 3 11 15.3	+ 7 21.1	- 6 40 57.3	- 6 57.6	9.6387224	9.7716435	9.7744137	
	17 302 54 16.8	3 15 1.9	6 7.5	6 47 21.1	5 49.1	9.6345701	9.7773973	9.7805889	
	18 306 11 19.7	3 19 6.9	4 47.7	6 52 33.8	4 35.4	9.6301510	9.7839835	9.7875760	
	19 309 32 37.0	3 23 30.6	3 22.3	6 56 30.0	3 16.0	9.6254671	9.7913600	9.7953289	
	20 312 58 27.9	3 28 13.9	1 52.1	6 59 3.7	1 50.5	9.6205220	9.7994759	9.8037939	
	21 316 29 12.5	+ 3 33 17.8	+ 0 18.2	- 7 0 8.7	- 0 18.3	9.6153203	9.8082756	9.8129134	
	22 320 5 11.4	3 38 42.7	- 1 18.3	6 59 38.0	+ 1 21.0	9.6098682	9.8176995	9.8226265	
	23 323 46 46.0	3 44 29.2	2 56.1	6 57 24.2	3 7.8	9.6041740	9.8276863	9.8328709	
	24 327 34 18.2	3 50 37.8	4 33.4	6 53 19.7	5 2.6	9.5982486	9.8381724	9.8435827	
	25 331 28 10.2	3 57 8.9	6 8.6	6 47 16.2	7 5.6	9.5921055	9.8490941	9.8546985	
	26 335 28 44.5	+ 4 4 2.5	- 7 39.3	- 6 39 5.2	+ 9 17.6	9.5857618	9.8603882	9.8661554	
	27 339 36 23.6	4 11 18.5	9 3.5	6 28 38.0	11 38.1	9.5792382	9.8719926	9.8778920	
	28 343 51 29.8	4 18 56.5	10 18.5	6 15 46.1	14 7.1	9.5725602	9.8838462	9.8898478	
	29 348 14 24.5	4 26 55.7	11 21.6	6 0 21.0	16 44.3	9.5657582	9.8958896	9.9019644	
	30 352 45 28.1	4 35 14.4	12 10.1	5 42 15.0	19 28.9	9.5588682	9.9080652	9.9141849	
	31 357 24 59.0	+ 4 43 50.3	- 12 41.2	- 5 21 21.0	+ 22 19.8	9.5519328	9.9203168	9.9264541	
Aug.	1 2 13 13.4	4 52 40.7	12 52.3	4 57 33.6	25 15.4	9.5450011	9.9325901	9.9387182	
	2 7 10 24.0	5 1 42.0	12 41.0	4 30 49.5	28 13.1	9.5381296	9.9448321	9.9509251	
	3 12 16 39.3	5 10 49.2	12 5.6	4 1 7.9	31 9.9	9.5313821	9.9569911	9.9630238	
	4 17 32 2.5	5 19 56.6	11 5.0	3 28 31.3	34 2.2	9.5248297	9.9690169	9.9749644	
	5 22 56 30.5	+ 5 28 57.4	- 9 39.3	- 2 53 6.6	+ 36 45.4	9.5185493	9.9808605	9.9866989	
	6 28 29 52.4	5 37 43.3	7 49.7	2 15 5.3	39 14.5	9.5126242	9.9924740	9.9981800	
	7 34 11 49.0	5 46 5.2	5 38.9	1 34 44.3	41 23.7	9.5071406	0.0038114	0.0093625	
	8 40 1 51.4	5 53 53.1	3 11.0	0 52 26.3	43 7.4	9.5021865	0.0148283	0.0202033	
	9 45 59 20.5	6 0 56.7	- 0 31.8	- 0 8 40.0	44 19.6	9.4978486	0.0254829	0.0306620	
	10 52 3 26.4	+ 6 7 5.2	+ 2 11.7	+ 0 36 0.7	+ 44 55.3	9.4942080	0.0357363	0.0407013	
	11 58 13 8.9	6 12 8.1	4 51.6	1 20 57.1	44 50.3	9.4913373	0.0455526	0.0502868	
	12 64 27 17.8	6 15 56.4	7 19.6	2 5 26.9	44 2.0	9.4892970	0.0549009	0.0593910	
	13 70 44 34.4	6 18 22.4	9 27.6	2 48 46.4	42 29.6	9.4881313	0.0637548	0.0679895	
	14 77 3 33.3	6 19 20.3	11 8.6	3 30 12.1	40 14.7	9.4878661	0.0720934	0.0760644	
	15 83 22 44.9	+ 6 18 47.5	+ 12 17.1	+ 4 9 2.8	+ 37 20.6	9.4885076	0.0799016	0.0836035	
	16 89 40 38.2	+ 6 16 44.0	+ 12 49.6	+ 4 44 42.0	+ 33 52.7	9.4900414	0.0871702	0.0906010	

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
	°	'	"			°	'	"			Noon.	Midnight.
Aug. 16	89	40	38.2	+ 6 16 44.0	+ 12 49.6	+ 4 44	42.0		+ 33 52.7	9.4900414	0.0871702	0.0906010
17	95	55	43.7	6 13 12.9	12 45.2	5 16	39.2		29 57.8	9.4924334	0.0938967	0.0970570
18	102	6	36.7	6 8 19.9	12 5.3	5 44	31.2		25 43.6	9.4956325	0.1000834	0.1029764
19	108	11	59.1	6 2 13.5	10 53.1	6 8	2.6		21 18.1	9.4995723	0.1057381	0.1083700
20	114	10	42.5	5 55 3.6	9 13.8	6 27	6.2		16 49.1	9.5041768	0.1108741	0.1132521
21	120	1	48.8	+ 5 47 1.3	+ 7 13.5	+ 6 41	41.8		+ 12 23.3	9.5093617	0.1155068	0.1176405
22	125	44	31.5	5 38 18.3	4 58.8	6 51	55.9		8 6.8	9.5150397	0.1196559	0.1215557
23	131	18	15.6	5 29 6.0	2 36.3	6 58	0.0		4 4.1	9.5211230	0.1233427	0.1250197
24	136	42	37.3	5 19 35.2	+ 0 12.2	7 0	9.7		+ 0 18.4	9.5275261	0.1265898	0.1280557
25	141	57	23.0	5 9 55.6	- 2 8.1	6 58	43.2		- 3 7.9	9.5341687	0.1294206	0.1306879
26	147	2	28.3	+ 5 0 15.7	- 4 20.1	+ 6 54	0.5		- 6 14.0	9.5409760	0.1318600	0.1329397
27	151	57	56.6	+ 50 42.6	6 20.2	6 46	21.9		8 59.7	9.5478797	0.1339298	0.1348332
28	156	43	57.7	4 41 22.2	8 6.0	6 36	7.8		11 25.3	9.5548194	0.1356527	0.1363910
29	161	20	46.6	4 32 19.0	9 35.7	6 23	37.6		13 31.9	9.5617416	0.1370506	0.1376339
30	165	48	42.5	4 23 36.4	10 48.5	6 9	9.9		15 20.7	9.5685998	0.1381434	0.1385815
31	170	8	7.0	+ 4 15 16.8	- 11 44.1	+ 5 53	1.7		- 16 53.1	9.5753544	0.1389503	0.1392519
Sept. 1	174	19	24.2	4 7 21.8	12 22.8	5 35	28.7		18 10.7	9.5819715	0.1394884	0.1396617
2	178	22	59.2	3 59 52.5	12 45.2	5 16	44.7		19 15.0	9.5884232	0.1397737	0.1398262
3	182	19	17.7	3 52 49.0	12 52.3	4 57	2.5		20 7.5	9.5946856	0.1398209	0.1397595
4	186	8	45.7	3 46 11.3	12 45.2	4 36	33.1		20 49.6	9.6007400	0.1396433	0.1394738
5	189	51	48.9	+ 3 39 59.2	- 12 25.3	+ 4 15	26.3		- 21 22.6	9.6065705	0.1392524	0.1389803
6	193	28	52.4	3 34 11.9	11 53.8	3 53	50.6		21 47.6	9.6121652	0.1386588	0.1382890
7	197	0	20.9	3 28 48.9	11 12.2	3 31	53.5		22 5.6	9.6175141	0.1378719	0.1374086
8	200	26	37.9	3 23 49.0	10 21.7	3 9	41.4		22 17.6	9.6226099	0.1368999	0.1363468
9	203	48	6.4	3 19 11.6	9 23.7	2 47	20.0		22 24.5	9.6274468	0.1357499	0.1351100
10	207	5	8.2	+ 3 14 55.5	- 8 19.5	+ 2 24	53.9		- 22 26.9	9.6320208	0.1344279	0.1337043
11	210	18	4.2	3 10 59.9	7 10.1	2 2	27.5		22 25.4	9.6363292	0.1329395	0.1321341
12	213	27	14.5	3 7 23.9	5 56.9	1 40	4.2		22 20.6	9.6403700	0.1312886	0.1304035
13	216	32	58.3	3 4 6.6	4 40.7	1 17	47.1		22 13.0	9.6441424	0.1294792	0.1285162
14	219	35	33.6	3 1 7.0	3 22.5	0 55	39.0		22 2.9	9.6476460	0.1275142	0.1264738
15	222	35	18.0	+ 2 58 24.6	- 2 3.3	+ 0 33	42.1		- 21 50.6	9.6508809	0.1253951	0.1242786
16	225	32	28.2	2 55 58.4	- 0 43.9	+ 0 11	58.5		21 36.4	9.6538476	0.1231241	0.1219318
17	228	27	20.2	2 53 48.0	+ 0 34.9	- 0 9	30.1		21 20.6	9.6565467	0.1207017	0.1194341
18	231	20	9.2	2 51 52.6	1 52.4	0 30	42.2		21 3.3	9.6589792	0.1181286	0.1167852
19	234	11	10.2	2 50 11.6	3 8.0	0 51	36.3		20 44.7	9.6611461	0.1154038	0.1139845
20	237	0	37.2	+ 2 48 44.7	+ 4 21.1	- 1 12	11.1		- 20 24.8	9.6630485	0.1125272	0.1110314
21	239	48	44.2	2 47 31.5	5 31.0	1 32	25.5		20 3.8	9.6646871	0.1094970	0.1079239
22	242	35	44.6	2 46 31.5	6 37.4	1 52	18.4		19 41.8	9.6660631	0.1063116	0.1046600
23	245	21	51.4	2 45 44.3	7 39.6	2 11	48.8		19 18.7	9.6671773	0.1029685	0.1012368
24	248	7	17.5	2 45 9.9	8 37.3	2 30	55.5		18 54.6	9.6680300	0.0994647	0.0976518
25	250	52	15.3	+ 2 44 47.9	+ 9 30.0	- 2 49	37.6		- 18 29.4	9.6686222	0.0957976	0.0939016
26	253	36	57.3	2 44 38.3	10 17.3	3 7	53.9		18 3.2	9.6689540	0.0919632	0.0899820
27	256	21	35.9	2 44 40.9	10 58.9	3 25	43.5		17 35.8	9.6690259	0.0879573	0.0858887
28	259	6	23.2	2 44 55.7	11 34.5	3 43	5.1		17 7.2	9.6688379	0.0837754	0.0816169
29	261	51	31.3	2 45 22.7	12 3.7	3 59	57.4		16 37.3	9.6683897	0.0794125	0.0771615
30	264	37	12.6	+ 2 46 1.9	+ 12 26.3	- 4 16	19.2		- 16 6.0	9.6676811	0.0748631	0.0725168
Oct. 1	267	23	39.4	+ 2 46 53.6	+ 12 42.0	- 4 32	8.9		- 15 33.2	9.6667116	0.0701216	0.0676767

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth	
									Noon.	Midnight.
Oct. 1	267	23	39.4	+ 2 46 53.6	+ 12 42.0	- 4 32 8.9	- 15 33.2	9.6667116	0.0701216	0.0676767
2	270	11	4.1	2 47 57.9	12 50.6	4 47 25.1	14 58.8	9.6654807	0.0651813	0.0626349
3	272	59	39.4	2 49 14.9	12 51.9	5 2 5.9	14 22.5	9.6639876	0.0600363	0.0573845
4	275	49	38.1	2 50 44.9	12 45.6	5 16 9.4	13 44.2	9.6622312	0.0546787	0.0519182
5	278	41	13.6	2 52 28.3	12 31.7	5 29 33.5	13 3.7	9.6602108	0.0491020	0.0462289
6	281	34	39.2	+ 2 54 25.3	+ 12 10.1	- 5 42 16.0	- 12 20.7	9.6579255	0.0432981	0.0403088
7	284	30	8.9	2 56 36.5	11 40.7	5 54 14.1	11 35.1	9.6553741	0.0372598	0.0341502
8	287	27	57.1	2 59 2.3	11 3.5	6 5 25.1	10 46.4	9.6525555	0.0309791	0.0277457
9	290	28	18.5	3 1 43.2	10 18.5	6 15 45.9	9 54.5	9.6494692	0.0244490	0.0210879
10	293	31	28.6	3 4 39.7	9 26.0	6 25 12.9	8 59.0	9.6461144	0.0176616	0.0141694
11	296	37	43.3	+ 3 7 52.4	+ 8 26.0	- 6 33 42.5	7 59.4	9.6424910	0.0106104	0.0069838
12	299	47	19.1	3 11 22.1	7 18.9	6 41 10.4	6 55.5	9.6385988	0.0032891	9.9995255
13	303	0	33.3	3 15 9.3	6 5.1	6 47 32.0	5 46.9	9.6344384	9.9956927	9.9917902
14	306	17	43.8	3 19 14.8	4 45.1	6 52 42.4	4 33.0	9.6300113	9.9878180	9.9837759
15	309	39	9.3	3 23 39.3	3 19.5	6 56 36.1	3 13.4	9.6253198	9.9796638	9.9754821
16	313	5	8.9	+ 3 28 23.4	+ 1 49.2	- 6 59 7.2	- 1 47.7	9.6203669	9.9712312	9.9669120
17	316	36	2.9	3 33 27.9	+ 0 15.2	7 0 9.2	- 0 15.3	9.6151576	9.9625255	9.9580731
18	320	12	11.7	3 38 53.4	- 1 21.4	6 59 35.4	+ 1 24.2	9.6096982	9.9535567	9.9489784
19	323	53	57.0	3 44 40.6	2 59.2	6 57 18.3	3 11.3	9.6039972	9.9443409	9.9396472
20	327	41	40.4	3 50 49.9	4 36.5	6 53 10.2	5 6.3	9.5980652	9.9349013	9.9301076
21	331	35	44.3	+ 3 57 21.6	- 6 11.5	- 6 47 2.9	+ 7 9.8	9.5919163	9.9252709	9.9203975
22	335	36	31.2	4 4 15.9	7 42.1	6 38 47.8	9 21.9	9.5855671	9.9154944	9.9105692
23	339	44	23.5	4 11 32.6	9 6.0	6 28 16.3	11 42.6	9.5790389	9.9056308	9.9006893
24	343	59	43.6	4 19 11.1	10 20.7	6 15 19.8	14 11.9	9.5723569	9.8957555	9.8908422
25	348	22	52.7	4 27 10.6	11 23.4	5 59 49.8	16 49.4	9.5655520	9.8859634	9.8811344
26	352	54	11.3	+ 4 35 29.7	- 12 11.4	- 5 41 38.6	+ 19 34.2	9.5586604	9.8763721	9.8716947
27	357	33	57.8	4 44 6.0	12 41.9	5 20 39.3	22 25.3	9.5517249	9.8671223	9.8626764
28	2	22	28.2	4 52 56.8	12 52.3	4 56 46.6	25 20.8	9.5447946	9.8583801	9.8542576
29	7	19	55.0	5 1 58.3	12 40.2	4 29 57.0	28 18.5	9.5379266	9.8503346	9.8466378
30	12	26	26.6	5 11 5.5	12 4.1	4 0 10.0	31 15.2	9.5311844	9.8431947	9.8400332
31	17	42	6.1	+ 5 20 12.8	- 11 2.8	- 3 27 28.2	+ 34 7.3	9.5246396	9.8371815	9.8346672
Nov. 1	23	6	50.0	5 29 13.2	9 36.3	2 51 58.5	36 50.2	9.5183694	9.8325173	9.8307575
2	28	40	27.4	5 37 58.4	7 46.0	2 13 52.7	39 18.7	9.5124568	9.8294109	9.8284988
3	34	22	38.7	5 46 19.4	5 34.6	1 33 27.8	41 27.3	9.5069885	9.8280389	9.8280459
4	40	12	54.7	5 54 6.1	3 6.3	0 51 6.7	43 10.0	9.5020523	9.8285298	9.8294969
5	46	10	36.0	+ 6 1 8.1	- 0 26.8	- 0 7 18.3	+ 44 21.2	9.4977347	9.8309479	9.8328796
6	52	14	52.4	6 7 14.6	+ 2 16.7	+ 0 37 23.4	44 55.6	9.4941166	9.8352833	9.8381466
7	58	24	43.4	6 12 15.5	4 56.4	1 22 19.5	44 49.2	9.4912704	9.8414520	9.8451787
8	64	38	58.5	6 16 1.4	7 23.9	2 6 47.7	43 59.7	9.4892560	9.8493019	9.8537939
9	70	56	18.8	6 18 24.7	9 31.2	2 50 4.3	42 26.0	9.4881174	9.8586250	9.8637637
10	77	15	18.7	+ 6 19 20.0	+ 11 11.2	+ 3 31 25.8	+ 40 9.9	9.4878797	9.8691778	9.8748346
11	83	34	28.5	6 18 44.5	12 18.6	4 10 11.1	37 14.6	9.4885484	9.8807006	9.8867426
12	89	52	17.4	6 16 38.3	12 50.0	4 45 43.9	33 45.8	9.4901086	9.8929301	9.8992335
13	96	7	15.9	6 13 4.6	12 44.5	5 17 33.9	29 50.2	9.4925255	9.9056242	9.9120749
14	102	17	59.4	6 8 9.3	12 3.5	5 45 18.1	25 35.6	9.4957476	9.9185612	9.9250603
15	108	23	10.2	+ 6 2 0.8	+ 10 50.5	+ 6 8 41.4	+ 21 9.9	9.4997085	9.9315515	9.9380160
16	114	21	40.0	+ 5 54 49.2	+ 9 10.4	+ 6 27 36.8	+ 16 40.9	9.5043312	9.9444371	9.9508000

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
									Noon.	Midnight.
Nov. 16	114	21	40.0	+ 5 54 49.2	+ 9 10.4	+ 6 27 36.8	+ 16 40.9	9.5043312	9.9444371	9.9508000
17	120	12	31.3	5 46 45.6	7 9.6	6 42 4.3	12 15.4	9.5095318	9.9570920	9.9633018
18	125	54	57.8	5 38 1.6	4 54.6	6 52 10.6	7 59.2	9.5152225	9.9694195	9.9754368
19	131	28	24.8	5 28 48.6	2 32.0	6 58 7.3	3 57.0	9.5213162	9.9813471	9.9871450
20	136	52	28.9	5 19 17.5	+ 0 7.9	7 0 10.2	+ 0 11.9	9.5277272	9.9928260	9.9983867
21	142	6	57.0	+ 5 9 37.9	- 2 12.2	+ 6 58 37.5	- 3 13.9	9.5343754	0.0038244	0.0091372
22	147	11	44.6	4 59 58.1	4 23.9	6 53 49.1	6 19.4	9.5411859	0.0143242	0.0193850
23	152	6	55.5	4 50 25.3	6 23.6	6 46 5.5	9 4.4	9.5480912	0.0243195	0.0291281
24	156	52	39.6	4 41 5.5	8 8.9	6 35 47.0	11 29.4	9.5550307	0.0338118	0.0383718
25	161	29	12.2	4 32 2.9	9 38.2	6 23 13.0	13 35.4	9.5619511	0.0428097	0.0471273
26	165	56	52.2	+ 4 23 20.9	- 10 50.4	+ 6 8 42.0	- 15 23.7	9.5688062	0.0513261	0.0554077
27	170	16	1.7	4 15 2.4	11 45.5	5 52 31.0	16 55.7	9.5755567	0.0593749	0.0632303
28	174	27	4.6	4 7 8.0	12 23.7	5 34 55.6	18 12.9	9.5821689	0.0669759	0.0706137
29	178	30	26.1	3 59 39.4	12 45.6	5 16 9.7	19 16.8	9.5886147	0.0741464	0.0775764
30	182	26	32.0	3 52 36.7	12 52.3	4 56 25.8	20 9.0	9.5948709	0.0809059	0.0841373
Dec. 1	186	15	48.1	+ 3 45 59.9	- 12 44.8	+ 4 35 55.1	- 20 50.7	9.6009184	0.0872731	0.0903156
2	189	58	40.2	3 39 48.5	12 24.5	4 14 47.3	21 23.4	9.6067418	0.0932669	0.0961292
3	193	35	33.3	3 34 1.9	11 52.7	3 53 10.9	21 48.2	9.6123289	0.0989047	0.1015958
4	197	6	52.1	3 28 39.6	11 10.8	3 31 13.2	22 6.1	9.6176700	0.1042043	0.1067324
5	200	33	0.3	3 23 40.5	10 20.1	3 9 0.7	22 18.0	9.6227578	0.1091818	0.1115546
6	203	54	20.5	+ 3 19 3.7	- 9 21.9	+ 2 46 39.0	- 22 24.7	9.6275867	0.1138526	0.1160777
7	207	11	14.8	3 14 48.2	8 17.4	2 24 12.9	22 26.9	9.6321526	0.1182314	0.1203154
8	210	24	3.8	3 10 53.3	7 8.0	2 1 46.5	22 25.3	9.6364528	0.1223313	0.1242809
9	213	33	7.8	3 7 17.9	5 54.6	1 39 23.3	22 20.5	9.6404854	0.1261653	0.1279860
10	216	38	45.8	3 4 1.1	4 38.3	1 17 6.4	22 12.7	9.6442496	0.1297444	0.1314418
11	219	41	15.9	+ 3 1 2.1	- 3 20.1	+ 0 54 58.6	- 22 2.5	9.6477450	0.1330795	0.1346588
12	222	40	55.6	2 58 20.1	2 0.9	0 33 2.1	21 50.2	9.6509717	0.1361808	0.1376467
13	225	38	1.5	2 55 54.4	- 0 41.5	+ 0 11 18.8	21 36.0	9.6539303	0.1390574	0.1404138
14	228	32	49.7	2 53 44.4	+ 0 37.3	- 0 10 9.3	21 20.1	9.6566213	0.1417170	0.1429680
15	231	25	35.4	2 51 49.5	1 54.8	0 31 20.9	21 2.8	9.6590458	0.1441676	0.1453166
16	234	16	33.4	+ 2 50 9.0	+ 3 10.3	- 0 52 14.4	- 20 44.1	9.6612046	0.1464157	0.1474659
17	237	5	58.0	2 48 42.5	4 23.3	1 12 48.7	20 24.2	9.6630990	0.1484677	0.1494219
18	239	54	3.0	2 47 29.6	5 33.1	1 33 2.5	20 3.2	9.6647298	0.1503290	0.1511896
19	242	41	1.7	2 46 30.0	6 39.3	1 52 54.7	19 41.1	9.6660978	0.1520043	0.1527736
20	245	27	7.3	2 45 43.3	7 41.4	2 12 24.4	19 18.0	9.6672039	0.1534981	0.1541784
21	248	12	32.4	+ 2 45 9.2	+ 8 39.0	- 2 31 30.4	- 18 53.8	9.6680489	0.1548146	0.1554066
22	250	57	29.8	2 44 47.6	9 31.5	2 50 11.7	18 28.6	9.6686333	0.1559552	0.1564610
23	253	42	11.7	2 44 38.3	10 18.7	3 8 27.3	18 2.3	9.6689575	0.1569241	0.1573446
24	256	26	50.4	2 44 41.3	11 0.1	3 26 16.0	17 34.9	9.6690216	0.1577228	0.1580587
25	259	11	38.3	2 44 56.4	11 35.5	3 43 36.7	17 6.3	9.6688257	0.1583526	0.1586047
26	261	56	47.4	+ 2 45 23.8	+ 12 4.5	- 4 0 28.1	- 16 36.4	9.6683698	0.1588148	0.1589830
27	264	42	30.0	2 46 3.5	12 26.9	4 16 49.0	16 5.0	9.6676534	0.1591093	0.1591937
28	267	28	58.5	2 46 55.5	12 42.4	4 32 37.7	15 32.2	9.6666761	0.1592360	0.1592363
29	270	16	25.3	2 48 0.1	12 50.7	4 47 52.8	14 57.7	9.6654373	0.1591943	0.1591099
30	273	5	3.0	2 49 17.5	12 51.8	5 2 32.5	14 21.4	9.6639363	0.1589829	0.1588129
31	275	55	4.6	+ 2 50 47.9	+ 12 45.3	- 5 16 34.8	- 13 43.0	9.6621721	0.1585997	0.1583429
32	278	46	43.3	+ 2 52 31.7	+ 12 31.2	- 5 29 57.9	- 13 2.1	9.6601438	0.1580422	

VENUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ' "	° ' "	' "	° ' "	' "			
Jan. 1	209 58 47.0	+ 1 36 22.8	- 3 0.9	+ 2 26 5.2	- 3 58.6	9.8587777	0.1465350	0.1480745
3	213 11 27.2	1 36 17.3	3 0.4	2 17 54.7	4 11.8	9.8589416	0.1495983	0.1511065
5	216 23 56.3	1 36 11.8	2 57.6	2 9 18.7	4 24.2	9.8591066	0.1525993	0.1540766
7	219 36 14.5	1 36 6.3	2 52.6	2 0 18.8	4 35.6	9.8592722	0.1555387	0.1569857
9	222 48 21.7	1 36 0.9	2 45.4	1 50 56.7	4 46.3	9.8594379	0.1584175	0.1598341
11	226 0 18.1	+ 1 35 55.5	- 2 36.1	+ 1 41 14.3	- 4 56.0	9.8596031	0.1612356	0.1626221
13	229 12 3.8	1 35 50.2	2 25.0	1 31 13.5	5 4.7	9.8597674	0.1639935	0.1653499
15	232 23 39.1	1 35 45.0	2 12.0	1 20 56.2	5 12.5	9.8599302	0.1666916	0.1680187
17	235 35 4.1	1 35 40.0	1 57.4	1 10 24.3	5 19.3	9.8600911	0.1693312	0.1706289
19	238 46 19.2	1 35 35.1	1 41.4	0 59 39.7	5 25.1	9.8602494	0.1719120	0.1731807
21	241 57 24.8	+ 1 35 30.5	- 1 24.1	+ 0 48 44.5	- 5 29.9	9.8604048	0.1744352	0.1756756
23	245 8 21.3	1 35 26.0	1 5.8	0 37 40.8	5 33.7	9.8605569	0.1769021	0.1781146
25	248 19 9.0	1 35 21.8	0 46.7	0 26 30.6	5 36.4	9.8607050	0.1793134	0.1804990
27	251 29 48.5	1 35 17.8	0 27.0	0 15 15.9	5 38.1	9.8608489	0.1816715	0.1828307
29	254 40 20.1	1 35 14.0	- 0 7.1	+ 0 3 58.8	5 38.8	9.8609878	0.1839769	0.1851105
31	257 50 44.5	+ 1 35 10.5	+ 0 13.0	- 0 7 18.5	- 5 38.4	9.8611216	0.1862315	0.1873400
Feb. 2	261 1 2.2	1 35 7.3	0 32.9	0 18 34.0	5 37.0	9.8612498	0.1884360	0.1895197
4	264 11 13.7	1 35 4.3	0 52.4	0 29 45.8	5 34.6	9.8613721	0.1905911	0.1916501
6	267 21 19.6	1 35 1.6	1 11.2	0 40 51.8	5 31.2	9.8614880	0.1926967	0.1937312
8	270 31 20.5	1 34 59.3	1 29.1	0 51 49.9	5 26.8	9.8615972	0.1947535	0.1957634
10	273 41 16.9	+ 1 34 57.2	+ 1 46.0	- 1 2 38.3	- 5 21.4	9.8616994	0.1967611	0.1977465
12	276 51 9.4	1 34 55.4	2 1.5	1 13 14.8	5 15.0	9.8617943	0.1987197	0.1996807
14	280 0 58.6	1 34 53.9	2 15.5	1 23 37.7	5 7.7	9.8618816	0.2006295	0.2015659
16	283 10 45.1	1 34 52.7	2 27.9	1 33 45.1	4 59.5	9.8619610	0.2024900	0.2034019
18	286 20 29.4	1 34 51.7	2 38.5	1 43 35.2	4 50.4	9.8620323	0.2043016	0.2051891
20	289 30 12.2	+ 1 34 51.0	+ 2 47.2	- 1 53 6.2	- 4 40.4	9.8620953	0.2060644	0.2069277
22	292 39 53.9	1 34 50.7	2 53.8	2 2 16.3	4 29.6	9.8621499	0.2077790	0.2086186
24	295 49 35.0	1 34 50.5	2 58.3	2 11 4.0	4 18.0	9.8621957	0.2094465	0.2102627
26	298 59 16.2	1 34 50.6	3 0.7	2 19 27.8	4 5.6	9.8622328	0.2110673	0.2118607
28	302 8 57.8	1 34 51.0	3 0.8	2 27 26.0	3 52.5	9.8622610	0.2126427	0.2134134
Mar. 2	305 18 40.4	+ 1 34 51.6	+ 2 58.7	- 2 34 57.2	- 3 38.7	9.8622801	0.2141729	0.2149213
4	308 28 24.4	1 34 52.4	2 54.5	2 42 0.2	3 24.2	9.8622902	0.2156587	0.2163849
6	311 38 10.3	1 34 53.4	2 48.1	2 48 33.6	3 9.1	9.8622913	0.2170999	0.2178038
8	314 47 58.4	1 34 54.6	2 39.7	2 54 36.2	2 53.4	9.8622833	0.2184965	0.2191779
10	317 57 49.1	1 34 56.0	2 29.4	3 0 7.0	2 37.2	9.8622662	0.2198480	0.2205067
12	321 7 42.7	+ 1 34 57.6	+ 2 17.2	- 3 5 4.9	- 2 20.6	9.8622401	0.2211541	0.2217901
14	324 17 39.6	1 34 59.3	2 3.3	3 9 29.0	2 3.4	9.8622050	0.2224146	0.2230275
16	327 27 40.0	1 35 1.2	1 48.0	3 13 18.6	1 46.0	9.8621612	0.2236287	0.2242181
18	330 37 44.3	1 35 3.2	1 31.3	3 16 32.8	1 28.2	9.8621086	0.2247958	0.2253616
20	333 47 52.7	1 35 5.3	1 13.5	3 19 11.1	1 10.1	9.8620475	0.2259155	0.2264574
22	336 58 5.5	+ 1 35 7.5	+ 0 54.8	- 3 21 12.9	- 0 51.7	9.8619780	0.2269873	0.2275054
24	340 8 22.8	1 35 9.8	0 35.4	3 22 37.9	0 33.2	9.8619003	0.2280116	0.2285059
26	343 18 44.8	1 35 12.2	+ 0 15.6	3 23 25.8	- 0 14.6	9.8618147	0.2289884	0.2294595
28	346 29 11.7	1 35 14.7	- 0 4.4	3 23 36.3	+ 0 4.1	9.8617214	0.2299189	0.2303666
30	349 39 43.7	1 35 17.3	0 24.4	3 23 9.4	0 22.8	9.8616207	0.2308027	0.2312272
Apr. 1	352 50 20.8	+ 1 35 19.9	- 0 44.0	- 3 22 5.2	+ 0 41.5	9.8615129	0.2316401	0.2320413
3	356 1 3.3	+ 1 35 22.6	- 1 3.2	- 3 20 23.7	+ 1 0.0	9.8613983	0.2324308	0.2328088

VENUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
	°	'	"			°	'	"			At Date.	At Intermediate Date.
Apr. 1	352	50	20.8	+ 1 35 19.9	— 0 44.0	— 3 22	5.2		+ 0 41.5	9.8615129	0.2316401	0.2320413
3	356	1	3.3	1 35 22.6	1 3.2	3 20	23.7		1 0.0	9.8613983	0.2324308	0.2328088
5	359	11	51.2	1 35 25.3	1 21.6	3 18	5.1		1 18.4	9.8612773	0.2331750	0.2335293
7	2	22	44.7	1 35 28.1	1 39.0	3 15	10.0		1 36.6	9.8611503	0.2338718	0.2342025
9	5	33	43.8	1 35 31.0	1 55.2	3 11	38.7		1 54.6	9.8610175	0.2345211	0.2348273
11	8	44	48.6	+ 1 35 33.9	— 2 9.9	— 3 7	31.9		+ 2 12.2	9.8608794	0.2351212	0.2354025
13	11	55	59.2	1 35 36.8	2 23.1	3 2	50.2		2 29.4	9.8607364	0.2356716	0.2359285
15	15	7	15.8	1 35 39.8	2 34.5	2 57	34.4		2 46.2	9.8605890	0.2361728	0.2364041
17	18	18	38.3	1 35 42.8	2 44.0	2 51	45.4		3 2.6	9.8604376	0.2366222	0.2368271
19	21	30	6.9	1 35 45.8	2 51.5	2 45	24.3		3 18.4	9.8602826	0.2370188	0.2372975
21	24	41	41.6	+ 1 35 48.9	— 2 56.9	— 2 38	32.2		+ 3 33.6	9.8601246	0.2373630	0.2375153
23	27	53	22.6	1 35 52.1	3 0.1	2 31	10.2		3 48.2	9.8599641	0.2376544	0.2377804
25	31	5	10.0	1 35 55.3	3 1.0	2 23	19.8		4 2.1	9.8598014	0.2378932	0.2379927
27	34	17	3.7	1 35 58.5	2 59.7	2 15	2.2		4 15.3	9.8596372	0.2380790	0.2381522
29	37	29	4.0	1 36 1.8	2 56.1	2 6	19.0		4 27.7	9.8594719	0.2382123	0.2382592
May 1	40	41	10.9	+ 1 36 5.1	— 2 50.4	— 1 57	11.8		+ 4 39.3	9.8593061	0.2382929	0.2383133
3	43	53	24.4	1 36 8.4	2 42.5	1 47	42.2		4 50.1	9.8591402	0.2383203	0.2383140
5	47	5	44.7	1 36 11.8	2 32.6	1 37	52.0		5 0.0	9.8589748	0.2382943	0.2382610
7	50	18	11.9	1 36 15.3	2 20.7	1 27	42.9		5 8.9	9.8588105	0.2382142	0.2381538
9	53	30	46.0	1 36 18.8	2 7.1	1 17	16.9		5 16.9	9.8586476	0.2380797	0.2379917
11	56	43	27.1	+ 1 36 22.3	— 1 51.9	— 1 6	35.9		+ 5 23.9	9.8584868	0.2378896	0.2377734
13	59	56	15.4	1 36 25.9	1 35.2	0 55	41.8		5 29.9	9.8583286	0.2376430	0.2374981
15	63	9	10.7	1 36 29.5	1 17.3	0 44	36.7		5 34.9	9.8581735	0.2373388	0.2371647
17	66	22	13.3	1 36 33.1	0 58.5	0 33	22.8		5 38.8	9.8580218	0.2369758	0.2367721
19	69	35	23.1	1 36 36.7	0 38.9	0 22	2.0		5 41.7	9.8578743	0.2365534	0.2363197
21	72	48	40.2	+ 1 36 40.4	— 0 18.8	— 0 10	36.6		+ 5 43.5	9.8577313	0.2360710	0.2358073
23	76	2	4.6	1 36 44.0	+ 0 1.5	+ 0 0	51.2		5 44.2	9.8575932	0.2355286	0.2352348
25	79	15	36.2	1 36 47.6	0 21.9	0 12	19.3		5 43.7	9.8574606	0.2349260	0.2346023
27	82	29	15.1	1 36 51.2	0 42.0	0 23	45.5		5 42.2	9.8573338	0.2342636	0.2339099
29	85	43	1.1	1 36 54.8	1 1.5	0 35	7.5		5 39.6	9.8572133	0.2335413	0.2331577
31	88	56	54.2	+ 1 36 58.3	+ 1 20.3	+ 0 46	23.2		+ 5 35.9	9.8570995	0.2327590	0.2323453
June 2	92	10	54.2	1 37 1.7	1 38.1	0 57	30.4		5 31.1	9.8569927	0.2319165	0.2314727
4	95	25	1.0	1 37 5.1	1 54.6	1 8	26.9		5 25.2	9.8568933	0.2310138	0.2305397
6	98	39	14.3	1 37 8.3	2 9.7	1 19	10.6		5 18.3	9.8568016	0.2300504	0.2295458
8	101	53	34.0	1 37 11.4	2 23.1	1 29	39.4		5 10.3	9.8567180	0.2290258	0.2284903
10	105	7	59.9	+ 1 37 14.4	+ 2 34.7	+ 1 39	51.2		+ 5 1.3	9.8566426	0.2279392	0.2273724
12	108	22	31.5	1 37 17.2	2 44.3	1 49	44.1		4 51.4	9.8565758	0.2267898	0.2261913
14	111	37	8.6	1 37 19.8	2 51.8	1 59	16.1		4 40.4	9.8565178	0.2255767	0.2249458
16	114	51	50.7	1 37 22.3	2 57.2	2 8	25.3		4 28.6	9.8564687	0.2242987	0.2236352
18	118	6	37.6	1 37 24.5	3 0.2	2 17	9.9		4 15.9	9.8564287	0.2229554	0.2222592
20	121	21	28.6	+ 1 37 26.5	+ 3 1.0	+ 2 25	28.2		+ 4 2.3	9.8563980	0.2215465	0.2208174
22	124	36	23.4	1 37 28.2	2 59.4	2 33	18.6		3 47.9	9.8563765	0.2200719	0.2193102
24	127	51	21.4	1 37 29.7	2 55.5	2 40	39.5		3 32.8	9.8563646	0.2185322	0.2177381
26	131	6	22.0	1 37 30.9	2 49.3	2 47	29.4		3 17.0	9.8563621	0.2169277	0.2161008
28	134	21	24.7	1 37 31.7	2 41.0	2 53	47.0		3 0.5	9.8563691	0.2152577	0.2143986
30	137	36	28.8	+ 1 37 32.3	+ 2 30.6	+ 2 59	31.1		+ 2 43.5	9.8563854	0.2135232	0.2126316
July 2	140	51	33.7	+ 1 37 32.5	+ 2 18.3	+ 3 4	40.5		+ 2 25.9	9.8564112	0.2117240	0.2108004

VENUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.			Reduction to Orbit.			Heliocentric Latitude.			Daily Motion.			Logarithm of Radius Vector.	Logarithm of Distance from Earth	
	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"		At Date.	At Intermediate Date.
July	2	140	51	33.7	+ 1	37	32.5	+ 2	18.3	+ 3	4	40.5	+ 2	25.9		9.8564112	0.2117240	0.2108004
	4	144	6	38.7	1	37	32.4	2	4.2	3	9	14.3	2	7.8		9.8564463	0.2098607	0.2089049
	6	147	21	43.2	1	37	32.0	1	48.5	3	13	11.6	1	49.4		9.8564906	0.2079329	0.2069446
	8	150	36	46.5	1	37	31.2	1	31.4	3	16	31.6	1	30.6		9.8565439	0.2059400	0.2049189
	10	153	51	47.8	1	37	30.0	1	13.2	3	19	13.8	1	11.5		9.8566061	0.2038815	0.2028275
	12	157	6	46.5	+ 1	37	28.5	+ 0	54.0	+ 3	21	17.5	+ 0	52.2		9.8566769	0.2017568	0.2006693
	14	160	21	41.8	1	37	26.7	0	34.1	3	22	42.4	0	32.7		9.8567561	0.1995649	0.1984435
	16	163	36	33.0	1	37	24.5	+ 0	13.8	3	23	28.3	+ 0	13.2		9.8568435	0.1973050	0.1961494
	18	166	51	19.5	1	37	22.0	- 0	6.7	3	23	35.1	- 0	6.4		9.8569388	0.1949766	0.1937868
	20	170	6	0.6	1	37	19.1	0	27.1	3	23	2.8	0	25.9		9.8570415	0.1925799	0.1913558
	22	173	20	35.7	+ 1	37	15.9	- 0	47.1	+ 3	21	51.6	- 0	45.3		9.8571515	0.1901147	0.1888567
	24	176	35	4.0	1	37	12.4	1	6.5	3	20	1.8	1	4.5		9.8572683	0.1875818	0.1862895
	26	179	49	25.0	1	37	8.6	1	25.1	3	17	33.7	1	23.5		9.8573916	0.1849803	0.1836545
	28	183	3	38.2	1	37	4.5	1	42.5	3	14	28.0	1	42.2		9.8575210	0.1823119	0.1809524
	30	186	17	42.9	1	37	0.2	1	58.7	3	10	45.3	2	0.5		9.8576561	0.1795761	0.1781832
Aug.	1	189	31	38.8	+ 1	36	55.6	- 2	13.3	+ 3	6	26.4	- 2	18.4		9.8577963	0.1767736	0.1753471
	3	192	45	25.3	1	36	50.9	2	26.2	3	1	32.1	2	35.8		9.8579412	0.1739043	0.1724447
	5	195	59	2.1	1	36	45.9	2	37.3	2	56	3.5	2	52.7		9.8580905	0.1709683	0.1694751
	7	199	12	28.8	1	36	40.8	2	46.3	2	50	1.8	3	8.9		9.8582436	0.1679651	0.1664380
	9	202	25	45.2	1	36	35.5	2	53.3	2	43	28.2	3	24.6		9.8584000	0.1648936	0.1633321
	11	205	38	50.9	+ 1	36	30.2	- 2	58.1	+ 2	36	23.9	- 3	39.6		9.8585592	0.1617532	0.1601566
	13	208	51	45.8	1	36	24.8	3	0.6	2	28	50.4	3	53.8		9.8587207	0.1585425	0.1569109
	15	212	4	29.8	1	36	19.3	3	0.8	2	20	49.2	4	7.2		9.8588841	0.1552614	0.1535937
	17	215	17	2.9	1	36	13.8	2	58.8	2	12	21.9	4	19.9		9.8590486	0.1519079	0.1502043
	19	218	29	24.9	1	36	8.3	2	54.6	2	3	30.2	4	31.7		9.8592140	0.1484827	0.1467432
	21	221	41	35.9	+ 1	36	2.8	- 2	48.1	+ 1	54	15.7	- 4	42.6		9.8593796	0.1449856	0.1432099
	23	224	53	36.1	1	35	57.4	2	39.6	1	44	40.2	4	52.7		9.8595450	0.1414161	0.1396043
	25	228	5	25.5	1	35	52.0	2	29.1	1	34	45.6	5	1.8		9.8597096	0.1377744	0.1359265
	27	231	17	4.3	1	35	46.8	2	16.7	1	24	33.8	5	9.9		9.8598729	0.1340605	0.1321766
	29	234	28	32.9	1	35	41.8	2	2.7	1	14	6.8	5	17.0		9.8600343	0.1302746	0.1283547
	31	237	39	51.5	+ 1	35	36.9	- 1	47.1	+ 1	3	26.4	- 5	23.2		9.8601934	0.1264167	0.1244607
Sept.	2	240	51	0.4	1	35	32.1	1	30.3	0	52	34.7	5	28.3		9.8603498	0.1224865	0.1204942
	4	244	2	0.0	1	35	27.6	1	12.3	0	41	33.8	5	32.5		9.8605030	0.1184835	0.1164542
	6	247	12	50.8	1	35	23.2	0	53.5	0	30	25.6	5	35.6		9.8606523	0.1144064	0.1123397
	8	250	23	33.2	1	35	19.1	0	34.0	0	19	12.3	5	37.6		9.8607975	0.1102540	0.1081490
	10	253	34	7.6	+ 1	35	15.3	- 0	14.1	+ 0	7	55.8	- 5	38.7		9.8609381	0.1060245	0.1038803
	12	256	44	34.6	1	35	11.7	+ 0	6.0	- 0	3	21.7	5	38.7		9.8610736	0.1017161	0.0995320
	14	259	54	54.6	1	35	8.4	0	26.0	0	14	38.1	5	37.6		9.8612037	0.0973276	0.0951026
	16	263	5	8.3	1	35	5.3	0	45.6	0	25	51.5	5	35.6		9.8613279	0.0928571	0.0905910
	18	266	15	16.2	1	35	2.6	1	4.7	0	36	59.7	5	32.5		9.8614460	0.0883040	0.0859960
	20	269	25	18.8	+ 1	35	0.1	+ 1	23.0	- 0	48	0.8	- 5	28.4		9.8615574	0.0836670	0.0813168
	22	272	35	16.9	1	34	57.9	1	40.2	0	58	52.8	5	23.4		9.8616619	0.0789452	0.0765521
	24	275	45	10.7	1	34	56.0	1	56.2	1	9	33.7	5	17.4		9.8617592	0.0741373	0.0717013
	26	278	55	1.2	1	34	54.4	2	10.8	1	20	1.6	5	10.4		9.8618490	0.0692436	0.0667640
	28	282	4	48.7	1	34	53.1	2	23.8	1	30	14.6	5	2.5		9.8619310	0.0642626	0.0617393
	30	285	14	33.9	+ 1	34	52.1	+ 2	35.1	- 1	40	10.9	- 4	53.7		9.8620050	0.0591940	0.0566265
	Oct. 2	288	24	17.3	+ 1	34	51.3	+ 2	44.4	- 1	49	48.8	- 4	44.0		9.8620705	0.0540366	0.0514241

VENUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—		
	°	'	"			°	'	"			At Date.	At Intermediate Date.	
Oct. 2	288	24	17.3	+ 1 34	51.3	+ 2	44.4	- 1 49	48.8	- 4 44.0	9.8620705	0.0540366	0.0514241
4	291	33	59.4	1 34	50.9	2	51.7	1 59	6.4	4 33.5	9.8621280	0.0487887	0.0461301
6	294	43	40.9	1 34	50.6	2	57.0	2 8	2.2	4 22.1	9.8621770	0.0434478	0.0407415
8	297	53	22.2	1 34	50.7	3	0.1	2 16	34.5	4 10.0	9.8622170	0.0380110	0.0352561
10	301	3	3.8	1 34	51.0	3	1.0	2 24	41.8	3 57.2	9.8622482	0.0324761	0.0296706
12	304	12	46.3	+ 1 34	51.5	+ 2	59.7	- 2 32	22.6	- 3 43.6	9.8622704	0.0268393	0.0239820
14	307	22	29.9	1 34	52.2	2	56.2	2 39	35.6	3 29.3	9.8622836	0.0210983	0.0181878
16	310	32	15.3	1 34	53.2	2	50.6	2 46	19.5	3 14.4	9.8622877	0.0152502	0.0122851
18	313	42	2.8	1 34	54.3	2	42.9	2 52	33.0	2 59.0	9.8622827	0.0092922	0.0062713
20	316	51	52.7	1 34	55.6	2	33.2	2 58	15.0	2 43.0	9.8622688	0.0032220	0.0001439
22	320	1	45.5	+ 1 34	57.1	+ 2	21.6	- 3 3	24.5	- 2 26.4	9.8622458	9.9970369	9.9939008
24	323	11	41.5	1 34	58.8	2	8.4	3 8	0.6	2 9.5	9.8622138	9.9907352	9.9875399
26	326	21	40.9	1 35	0.6	1	53.5	3 12	2.3	1 52.1	9.8621730	9.9843146	9.9810593
28	329	31	44.1	1 35	2.6	1	37.3	3 15	28.9	1 34.4	9.8621234	9.9777735	9.9744570
30	332	41	51.3	1 35	4.7	1	19.8	3 18	19.9	1 16.4	9.8620652	9.9711094	9.9677305
Nov. 1	335	52	2.7	+ 1 35	6.8	+ 1	1.4	- 3 20	34.5	- 0 58.2	9.8619987	9.9643197	9.9608766
3	339	2	18.6	1 35	9.1	0	42.3	3 22	12.4	0 39.7	9.8619239	9.9574008	9.9538917
5	342	12	39.1	1 35	11.5	0	22.6	3 23	13.3	0 21.1	9.8618410	9.9503487	9.9467711
7	345	23	4.5	1 35	13.9	+ 0	2.6	3 23	36.9	- 0 2.5	9.8617504	9.9431583	9.9395098
9	348	33	34.9	1 35	16.5	- 0	17.4	3 23	23.0	+ 0 16.3	9.8616523	9.9358248	9.9321028
11	351	44	10.4	+ 1 35	19.1	- 0	37.2	- 3 22	31.8	+ 0 35.0	9.8615470	9.9283432	9.9245457
13	354	54	51.2	1 35	21.7	0	56.6	3 21	3.3	0 53.6	9.8614348	9.9207093	9.9168334
15	358	5	37.4	1 35	24.5	1	15.3	3 18	57.7	1 12.0	9.8613160	9.9129173	9.9089606
17	1	16	29.1	1 35	27.2	1	33.0	3 16	15.3	1 30.3	9.8611911	9.9049626	9.9009227
19	4	27	26.4	1 35	30.1	1	49.7	3 12	56.5	1 48.3	9.8610603	9.8968404	9.8927152
21	7	38	29.4	+ 1 35	32.9	- 2	5.0	- 3 9	2.0	+ 2 6.1	9.8609240	9.8885466	9.8843338
23	10	49	38.2	1 35	35.8	2	18.7	3 4	32.4	2 23.5	9.8607828	9.8800765	9.8757746
25	14	0	52.9	1 35	38.8	2	30.7	2 59	28.4	2 40.4	9.8606369	9.8714274	9.8670346
27	17	12	13.5	1 35	41.8	2	40.9	2 53	50.9	2 57.0	9.8604869	9.8625956	9.8581099
29	20	23	40.1	1 35	44.8	2	49.1	2 47	40.9	3 13.0	9.8603332	9.8535770	9.8489963
Dec. 1	23	35	12.9	+ 1 35	47.9	- 2	55.3	- 2 40	59.5	+ 3 28.4	9.8601763	9.8443669	9.8396882
3	26	46	51.9	1 35	51.1	2	59.2	2 33	47.8	3 43.2	9.8600166	9.8349594	9.8301796
5	29	58	37.2	1 35	54.2	3	0.9	2 26	7.1	3 57.4	9.8598547	9.8253482	9.8204645
7	33	10	28.8	1 35	57.4	3	0.4	2 17	58.8	4 10.8	9.8596910	9.8155274	9.8105359
9	36	22	27.0	1 36	0.7	2	57.6	2 9	24.4	4 23.5	9.8595261	9.8054894	9.8003873
11	39	34	31.6	+ 1 36	4.0	- 2	52.6	- 2 0	25.4	+ 4 35.4	9.8593604	9.7952286	9.7900124
13	42	46	43.0	1 36	7.4	2	45.5	1 51	3.4	4 46.5	9.8591945	9.7847382	9.7794053
15	45	59	1.1	1 36	10.7	2	36.2	1 41	20.2	4 56.7	9.8590289	9.7740131	9.7685607
17	49	11	26.0	1 36	14.2	2	25.0	1 31	17.5	5 5.9	9.8588642	9.7630478	9.7574738
19	52	23	57.8	1 36	17.7	2	12.0	1 20	57.1	5 14.2	9.8587008	9.7518385	9.7461415
21	55	36	36.6	+ 1 36	21.2	- 1	57.3	- 1 10	21.1	+ 5 21.6	9.8585393	9.7403828	9.7345624
23	58	49	22.5	1 36	24.7	1	41.2	0 59	31.3	5 28.0	9.8583802	9.7286805	9.7227372
25	62	2	15.6	1 36	28.3	1	23.7	0 48	29.9	5 33.3	9.8582239	9.7167328	9.7106676
27	65	15	15.8	1 36	31.9	1	5.2	0 37	18.8	5 37.6	9.8580711	9.7045423	9.6983575
29	68	28	23.2	1 36	35.5	0	45.8	0 26	0.1	5 40.8	9.8579221	9.6921139	9.6858117
31	71	41	38.0	+ 1 36	39.2	- 0	25.9	- 0 14	36.1	+ 5 43.0	9.8577775	9.6794522	9.6730361
33	74	55	0.0	+ 1 36	42.8	- 0	5.6	- 0 3	8.9	+ 5 44.1	9.8576377	9.6665647	

MARS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Interme- diate Date.
Jan. 1	130 12 22.4	+ 26 40.66	+ 15.9	+ 1 49 46.4	+ 7.72	0.21775559	9.9713400	9.9675460
3	131 5 41.7	26 38.64	14.3	1 50 1.1	6.91	0.21803085	9.9637483	9.9599484
5	131 58 57.0	26 36.69	12.6	1 50 14.1	6.11	0.21829616	9.9561478	9.9523482
7	132 52 8.5	26 34.81	11.0	1 50 25.5	5.32	0.21855153	9.9485517	9.9447602
9	133 45 16.3	26 33.02	9.4	1 50 35.4	4.52	0.21879687	9.9409754	9.9371998
11	134 38 20.6	+ 26 31.29	+ 7.8	+ 1 50 43.6	+ 3.72	0.21903218	9.9334359	9.9296864
13	135 31 21.5	26 29.64	6.1	1 50 50.3	2.93	0.21925743	9.9259537	9.9222402
15	136 24 19.2	26 28.07	4.5	1 50 55.3	2.14	0.21947256	9.9185491	9.9148836
17	137 17 13.9	26 26.58	2.8	1 50 58.8	1.35	0.21967758	9.9112470	9.9076424
19	138 10 5.6	26 25.15	+ 1.2	1 51 0.7	+ 0.56	0.21987245	9.9040733	9.9005432
21	139 2 54.5	+ 26 23.81	- 0.5	+ 1 51 1.0	- 0.22	0.22005713	9.8970561	9.8936156
23	139 55 40.8	26 22.53	2.1	1 50 59.8	1.00	0.22023165	9.8902253	9.8868887
25	140 48 24.7	26 21.33	3.8	1 50 57.0	1.78	0.22039594	9.8836102	9.8803939
27	141 41 6.2	26 20.21	5.4	1 50 52.7	2.56	0.22054998	9.8772435	9.8741625
29	142 33 45.6	26 19.16	7.0	1 50 46.7	3.35	0.22069377	9.8711549	9.8682248
31	143 26 22.9	+ 26 18.19	- 8.7	+ 1 50 39.3	- 4.12	0.22082731	9.8653759	9.8626121
Feb. 2	144 18 58.3	26 17.28	10.3	1 50 30.3	4.89	0.22095057	9.8599375	9.8573562
4	145 11 32.0	26 16.45	11.9	1 50 19.7	5.66	0.22106351	9.8548721	9.8524892
6	146 4 4.1	26 15.71	13.5	1 50 7.6	6.43	0.22116615	9.8502114	9.8480428
8	146 56 34.9	26 15.03	15.1	1 49 53.9	7.20	0.22125846	9.8459871	9.8440480
10	147 49 4.3	+ 26 14.42	- 16.7	+ 1 49 38.8	- 7.96	0.22134042	9.8422291	9.8405345
12	148 41 32.6	26 13.90	18.2	1 49 22.1	8.73	0.22141205	9.8389671	9.8375300
14	149 33 59.9	26 13.43	19.7	1 49 3.9	9.50	0.22147330	9.8362262	9.8350588
16	150 26 26.4	26 13.06	21.3	1 48 44.1	10.24	0.22152420	9.8340299	9.8331420
18	151 18 52.2	26 12.75	22.8	1 48 22.9	10.99	0.22156472	9.8323965	9.8317953
20	152 11 17.5	+ 26 12.51	- 24.2	+ 1 48 0.1	- 11.76	0.22159487	9.8313398	9.8310310
22	153 3 42.3	26 12.37	25.7	1 47 35.9	12.52	0.22161466	9.8308685	9.8308525
24	153 56 7.0	26 12.29	27.1	1 47 10.1	13.25	0.22162407	9.8309822	9.8312573
26	154 48 31.5	26 12.27	28.5	1 46 42.9	13.99	0.22162310	9.8316765	9.8322388
28	155 40 56.1	26 12.34	29.9	1 46 14.2	14.74	0.22161176	9.8329422	9.8337848
Mar. 2	156 33 20.9	+ 26 12.48	- 31.2	+ 1 45 43.9	- 15.48	0.22159003	9.8347642	9.8358784
4	157 25 46.1	26 12.70	32.6	1 45 12.2	16.21	0.22155793	9.8371246	9.8385002
6	158 18 11.8	26 13.00	33.9	1 44 39.1	16.95	0.22151545	9.8400022	9.8416277
8	159 10 38.1	26 13.36	35.1	1 44 4.4	17.68	0.22146261	9.8433733	9.8452355
10	160 3 5.3	26 13.80	36.3	1 43 28.4	18.41	0.22139942	9.8472111	9.8492968
12	160 55 33.4	+ 26 14.31	- 37.5	+ 1 42 50.8	- 19.12	0.22132586	9.8514886	9.8537823
14	161 48 2.6	26 14.90	38.7	1 42 11.8	19.86	0.22124197	9.8561744	9.8586610
16	162 40 33.0	26 15.56	39.8	1 41 31.3	20.58	0.22114772	9.8612382	9.8639020
18	163 33 4.9	26 16.30	40.9	1 40 49.5	21.30	0.22104314	9.8666483	9.8694729
20	164 25 38.3	26 17.12	41.9	1 40 6.1	22.02	0.22092827	9.8723715	9.8753401
22	165 18 13.4	+ 26 18.01	- 43.0	+ 1 39 21.4	- 22.73	0.22080307	9.8783744	9.8814704
24	166 10 50.4	26 18.97	43.9	1 38 35.2	23.43	0.22066760	9.8846239	9.8878306
26	167 3 29.4	26 20.01	44.9	1 37 47.6	24.15	0.22052184	9.8910867	9.8943883
28	167 56 10.5	26 21.12	45.7	1 36 58.6	24.85	0.22036585	9.8977320	9.9011138
30	168 48 53.9	26 22.32	46.6	1 36 8.2	25.55	0.22019962	9.9045304	9.9079789
Apr. 1	169 41 39.8	+ 26 23.58	- 47.4	+ 1 35 16.4	- 26.25	0.22002315	9.9114565	9.9149602
3	170 34 28.3	+ 26 24.92	- 48.2	+ 1 34 23.2	- 26.94	0.21983652	9.9184868	9.9220338

MARS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth	
											At Date.	At Interme- diate Date.
	°	'	"	"	"	°	'	"	"			
Apr. 1	169	41	39.8	+ 26 23.58	- 47.4	+ 1	35	16.4	- 26.25	0.22002315	9.9114565	9.9149602
3	170	34	28.3	26 24.92	48.2	1	34	23.2	26.94	0.21983652	9.9184868	9.9220338
5	171	27	19.5	26 26.34	48.9	1	33	28.7	27.63	0.21963969	9.9255988	9.9291788
7	172	20	13.7	26 27.83	49.5	1	32	32.7	28.32	0.21943271	9.9327721	9.9363765
9	173	13	10.9	26 29.39	50.2	1	31	35.4	29.00	0.21921560	9.9399901	9.9436107
11	174	6	11.3	+ 26 31.02	- 50.7	+ 1	30	36.7	- 29.68	0.21898840	9.9472366	9.9508656
13	174	59	15.0	26 32.74	51.3	1	29	36.7	30.36	0.21875109	9.9544961	9.9581267
15	175	52	22.3	26 34.52	51.7	1	28	35.3	31.03	0.21850378	9.9617558	9.9653815
17	176	45	33.2	26 36.38	52.2	1	27	32.5	31.70	0.21824645	9.9690027	9.9726173
19	177	38	47.9	26 38.33	52.5	1	26	28.5	32.36	0.21797914	9.9762241	9.9798219
21	178	32	6.6	+ 26 40.34	- 52.9	+ 1	25	23.1	- 33.03	0.21770188	9.9834093	9.9869846
23	179	25	29.3	26 42.44	53.2	1	24	16.4	33.68	0.21741469	9.9905469	9.9940947
25	180	18	56.4	26 44.61	53.4	1	23	8.3	34.34	0.21711763	9.9976274	0.0011443
27	181	12	27.8	26 46.85	53.6	1	21	59.0	34.99	0.21681076	0.0046446	0.0081272
29	182	6	3.8	26 49.17	53.7	1	20	48.4	35.63	0.21649408	0.0115916	0.0150371
May 1	182	59	44.5	+ 26 51.57	- 53.8	+ 1	19	36.5	- 36.27	0.21616763	0.0184634	0.0218701
3	183	53	30.1	26 54.03	53.8	1	18	23.3	36.91	0.21583151	0.0252568	0.0286233
5	184	47	20.7	26 56.58	53.8	1	17	8.8	37.54	0.21548570	0.0319691	0.0352937
7	185	41	16.5	26 59.20	53.7	1	15	53.1	38.17	0.21513027	0.0385969	0.0418786
9	186	35	17.6	27 1.89	53.5	1	14	36.2	38.79	0.21476527	0.0451387	0.0483769
11	187	29	24.1	+ 27 4.67	- 53.3	+ 1	13	18.0	- 39.40	0.21439075	0.0515931	0.0547870
13	188	23	36.3	27 7.53	53.1	1	11	58.6	40.02	0.21400675	0.0579586	0.0611077
15	189	17	54.3	27 10.45	52.8	1	10	37.9	40.62	0.21361335	0.0642340	0.0673373
17	190	12	18.2	27 13.45	52.5	1	9	16.1	41.22	0.21321058	0.0704173	0.0734737
19	191	6	48.1	27 16.52	52.0	1	7	53.0	41.81	0.21279853	0.0765064	0.0795150
21	192	1	24.3	+ 27 19.67	- 51.6	+ 1	6	28.8	- 42.41	0.21237726	0.0824996	0.0854600
23	192	56	6.8	27 22.90	51.1	1	5	3.4	42.99	0.21194679	0.0883961	0.0913078
25	193	50	55.9	27 26.20	50.5	1	3	36.8	43.56	0.21150723	0.0941950	0.0970577
27	194	45	51.7	27 29.58	49.9	1	2	9.1	44.14	0.21105863	0.0998962	0.1027104
29	195	40	54.3	27 33.04	49.2	1	0	40.2	44.71	0.21060104	0.1055006	0.1082669
31	196	36	3.9	+ 27 36.57	- 48.5	+ 0	59	10.3	- 45.27	0.21013456	0.1110093	0.1137280
June 2	197	31	20.6	27 40.17	47.7	0	57	39.2	45.82	0.20965926	0.1164232	0.1190951
4	198	26	44.6	27 43.85	46.9	0	56	7.0	46.37	0.20917521	0.1217439	0.1243697
6	199	22	16.1	27 47.60	46.0	0	54	33.7	46.90	0.20868249	0.1269727	0.1295530
8	200	17	55.1	27 51.44	45.1	0	52	59.4	47.41	0.20818120	0.1321109	0.1346466
10	201	13	41.9	+ 27 55.35	- 44.1	+ 0	51	24.0	- 47.94	0.20767137	0.1371602	0.1396517
12	202	9	36.5	27 59.31	43.1	0	49	47.5	48.46	0.20715315	0.1421212	0.1445689
14	203	5	39.2	28 3.37	42.0	0	48	10.0	48.99	0.20662659	0.1469946	0.1493984
16	204	1	50.1	28 7.50	40.9	0	46	31.5	49.48	0.20609179	0.1517804	0.1541407
18	204	58	9.2	28 11.71	39.8	0	44	52.1	49.98	0.20554884	0.1564791	0.1587957
20	205	54	37.0	+ 28 15.98	- 38.6	+ 0	43	11.6	- 50.47	0.20499786	0.1610905	0.1633638
22	206	51	13.2	28 20.32	37.3	0	41	30.2	50.94	0.20443892	0.1656156	0.1678461
24	207	47	58.3	28 24.75	36.0	0	39	47.9	51.40	0.20387217	0.1700554	0.1722437
26	208	44	52.3	28 29.26	34.6	0	38	4.6	51.86	0.20329770	0.1744113	0.1765583
28	209	41	55.4	28 33.84	33.3	0	36	20.4	52.31	0.20271558	0.1786848	0.1807911
30	210	39	7.7	+ 28 38.47	- 31.8	+ 0	34	35.4	- 52.74	0.20212595	0.1828774	0.1849441
July 2	211	36	29.3	+ 28 43.18	- 30.4	+ 0	32	49.4	- 53.17	0.20152893	0.1869914	0.1890195

MARS.

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											At Date.	At Intermediate Date.
July 2	211	36	29.3	+28 43.18	-30.4	+0	32	49.4	-53.17	0.20152893	0.1869914	0.1890195
4	212	34	0.5	28 47.97	28.9	0	31	2.7	53.59	0.20092463	0.1910285	0.1930188
6	213	31	41.2	28 52.82	27.3	0	29	15.1	53.99	0.20031318	0.1949904	0.1969436
8	214	29	31.8	28 57.75	25.8	0	27	26.7	54.39	0.19969474	0.1988785	0.2007952
10	215	27	32.3	29 2.75	24.1	0	25	37.5	54.78	0.19906938	0.2026940	0.2045750
12	216	25	42.9	+29 7.82	-22.5	+0	23	47.6	-55.15	0.19843727	0.2064381	0.2082834
14	217	24	3.6	29 12.95	20.8	0	21	56.9	55.50	0.19779854	0.2101109	0.2119209
16	218	22	34.7	29 18.16	19.1	0	20	5.6	55.85	0.19715329	0.2137133	0.2154879
18	219	21	16.3	29 23.44	17.4	0	18	13.5	56.18	0.19650171	0.2172449	0.2189847
20	220	20	8.5	29 28.77	15.7	0	16	20.8	56.51	0.19584395	0.2207072	0.2224125
22	221	19	11.4	+29 34.17	-13.9	+0	14	27.5	-56.83	0.19518015	0.2241007	0.2257721
24	222	18	25.3	29 39.65	12.1	0	12	33.5	57.12	0.19451046	0.2274267	0.2290647
26	223	17	50.1	29 45.19	10.3	0	10	39.0	57.40	0.19383504	0.2306863	0.2322919
28	224	17	26.1	29 50.79	8.4	0	8	43.9	57.66	0.19315405	0.2338815	0.2354553
30	225	17	13.3	29 56.46	6.6	0	6	48.3	57.92	0.19246768	0.2370136	0.2385566
Aug. 1	226	17	12.0	+30 2.18	-4.7	+0	4	52.2	-58.15	0.19177607	0.2400845	0.2415973
3	227	17	22.1	30 7.97	2.8	0	2	55.7	58.38	0.19107940	0.2430953	0.2445789
5	228	17	43.9	30 13.82	-0.9	+0	0	58.7	58.60	0.19037788	0.2460480	0.2475028
7	229	18	17.5	30 19.73	+0.9	-0	0	58.7	58.78	0.18967167	0.2489434	0.2503700
9	230	19	2.9	30 25.70	2.8	0	2	56.4	58.95	0.18896095	0.2517825	0.2531811
11	231	20	0.3	+30 31.73	+4.7	-0	4	54.5	-59.11	0.18824593	0.2545658	0.2559364
13	232	21	9.8	30 37.81	6.6	0	6	52.8	59.25	0.18752681	0.2572931	0.2586361
15	233	22	31.6	30 43.94	8.5	0	8	51.5	59.37	0.18680377	0.2599654	0.2612807
17	234	24	5.7	30 50.13	10.5	0	10	50.3	59.48	0.18607703	0.2625825	0.2638709
19	235	25	52.2	30 56.38	12.3	0	12	49.4	59.56	0.18534680	0.2651460	0.2664076
21	236	27	51.2	+31 2.67	+14.2	-0	14	48.6	-59.62	0.18461328	0.2676560	0.2688913
23	237	30	2.9	31 9.00	16.1	0	16	47.9	59.68	0.18387672	0.2701138	0.2713236
25	238	32	27.2	31 15.39	17.9	0	18	47.3	59.70	0.18313729	0.2725208	0.2737056
27	239	35	4.4	31 21.83	19.8	0	20	46.7	59.71	0.18239526	0.2748782	0.2760386
29	240	37	54.5	31 28.31	21.6	0	22	46.1	59.69	0.18165083	0.2771871	0.2783240
31	241	40	57.7	+31 34.83	+23.4	-0	24	45.5	-59.65	0.18090431	0.2794495	0.2805637
Sept. 2	242	44	13.9	31 41.38	25.1	0	26	44.8	59.61	0.18015585	0.2816667	0.2827584
4	243	47	43.2	31 47.98	26.9	0	28	43.9	59.53	0.17940574	0.2838392	0.2849094
6	244	51	25.8	31 54.62	28.6	0	30	42.9	59.43	0.17865423	0.2859687	0.2870171
8	245	55	21.7	32 1.28	30.3	0	32	41.6	59.30	0.17790157	0.2880547	0.2890815
10	246	59	30.9	+32 7.98	+31.9	-0	34	40.1	-59.16	0.17714801	0.2900976	0.2911030
12	248	3	53.6	32 14.71	33.5	0	36	38.3	58.99	0.17639383	0.2920979	0.2930821
14	249	8	29.8	32 21.48	35.1	0	38	36.1	58.79	0.17563929	0.2940557	0.2950189
16	250	13	19.5	32 28.26	36.6	0	40	33.4	58.57	0.17488466	0.2959716	0.2969139
18	251	18	22.9	32 35.07	38.0	0	42	30.4	58.34	0.17413023	0.2978463	0.2987684
20	252	23	39.8	+32 41.90	+39.5	-0	44	26.8	-58.06	0.17337625	0.2996806	0.3005828
22	253	29	10.5	32 48.75	40.8	0	46	22.6	57.77	0.17262305	0.3014753	0.3023582
24	254	34	54.8	32 55.61	42.1	0	48	17.9	57.45	0.17187088	0.3032317	0.3040964
26	255	40	52.9	33 2.49	43.4	0	50	12.4	57.11	0.17112003	0.3049519	0.3057979
28	256	47	4.8	33 9.37	44.6	0	52	6.3	56.73	0.17037082	0.3066351	0.3074638
30	257	53	30.4	+33 16.26	+45.7	-0	53	59.4	-56.33	0.16962355	0.3082841	0.3090963
Oct. 2	259	0	9.8	+33 23.16	+46.8	-0	55	51.6	-55.91	0.16887852	0.3099002	0.3106956

MARS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
	°	'	"			°	'	"			At Date.	At Intermediate Date.
Oct. 2	259	0	9.8	+ 33 23.16	+ 46.8	— 0	55	51.6	— 55.91	0.16887852	0.3099002	0.3106956
4	260	7	3.0	33 30.05	47.8	0	57	43.0	55.46	0.16813604	0.3114828	0.3122618
6	261	14	10.0	33 36.94	48.7	0	59	33.4	54.97	0.16739640	0.3130329	0.3137962
8	262	21	30.8	33 43.84	49.6	1	1	22.9	54.46	0.16665995	0.3145516	0.3152988
10	263	29	5.4	33 50.72	50.3	1	3	11.3	53.92	0.16592697	0.3160379	0.3167689
12	264	36	53.7	+ 33 57.58	+ 51.0	— 1	4	58.6	— 53.35	0.16519780	0.3174920	0.3182075
14	265	44	55.7	34 4.43	51.7	1	6	44.7	52.75	0.16447279	0.3189153	0.3196152
16	266	53	11.4	34 11.27	52.2	1	8	29.6	52.13	0.16375222	0.3203074	0.3209920
18	268	1	40.9	34 18.10	52.7	1	10	13.2	51.48	0.16303644	0.3216691	0.3223389
20	269	10	23.9	34 24.89	53.1	1	11	55.5	50.79	0.16232578	0.3230014	0.3236567
22	270	19	20.4	+ 34 31.64	+ 53.4	— 1	13	36.3	— 50.08	0.16162057	0.3243049	0.3249463
24	271	28	30.5	34 38.36	53.6	1	15	15.8	49.34	0.16092117	0.3255809	0.3262089
26	272	37	53.9	34 45.05	53.7	1	16	53.7	48.56	0.16022790	0.3268305	0.3274458
28	273	47	30.7	34 51.71	53.8	1	18	30.0	47.77	0.15954108	0.3280550	0.3286581
30	274	57	20.7	34 58.33	53.7	1	20	4.7	46.93	0.15886105	0.3292553	0.3298466
Nov. 1	276	7	23.9	+ 35 4.88	+ 53.6	— 1	21	37.7	— 46.06	0.15818817	0.3304321	0.3310120
3	277	17	40.2	35 11.37	53.4	1	23	9.0	45.17	0.15752278	0.3315862	0.3321546
5	278	28	9.4	35 17.82	53.1	1	24	38.4	44.25	0.15686521	0.3327173	0.3332742
7	279	38	51.5	35 24.22	52.7	1	26	6.0	43.30	0.15621583	0.3338255	0.3343712
9	280	49	46.2	35 30.54	52.2	1	27	31.6	42.31	0.15557495	0.3349112	0.3354456
11	282	0	53.6	+ 35 36.79	+ 51.6	— 1	28	55.2	— 41.30	0.15494292	0.3359745	0.3364981
13	283	12	13.4	35 42.97	50.9	1	30	16.8	40.26	0.15432009	0.3370161	0.3375287
15	284	23	45.5	35 49.08	50.1	1	31	36.2	39.19	0.15370678	0.3380359	0.3385380
17	285	35	29.7	35 55.10	49.3	1	32	53.6	38.10	0.15310335	0.3390350	0.3395269
19	286	47	25.8	36 1.03	48.3	1	34	8.7	36.97	0.15251011	0.3400138	0.3404958
21	287	59	33.8	+ 36 6.86	+ 47.3	— 1	35	21.5	— 35.82	0.15192742	0.3409731	0.3414457
23	289	11	53.3	36 12.65	46.2	1	36	31.9	34.64	0.15135558	0.3419139	0.3423778
25	290	24	24.3	36 18.31	45.0	1	37	40.0	33.43	0.15079496	0.3428376	0.3432935
27	291	37	6.4	36 23.85	43.7	1	38	45.7	32.20	0.15024585	0.3437454	0.3441935
29	292	49	59.6	36 29.29	42.3	1	39	48.8	30.94	0.14970859	0.3446376	0.3450781
Dec. 1	294	3	3.5	+ 36 34.64	+ 40.9	— 1	40	49.4	— 29.65	0.14918351	0.3455148	0.3459478
3	295	16	18.1	36 39.86	39.4	1	41	47.4	28.34	0.14867088	0.3463770	0.3468026
5	296	29	42.9	36 44.96	37.8	1	42	42.8	27.01	0.14817106	0.3472245	0.3476426
7	297	43	17.9	36 49.94	35.1	1	43	35.5	25.65	0.14768432	0.3480571	0.3484679
9	298	57	2.6	36 54.80	34.3	1	44	25.4	24.27	0.14721097	0.3488751	0.3492786
11	300	10	57.0	+ 36 59.52	+ 32.5	— 1	45	12.5	— 22.87	0.14675128	0.3496785	0.3500749
13	301	25	0.6	37 4.11	30.7	1	45	56.9	21.44	0.14630558	0.3504677	0.3508570
15	302	39	13.3	37 8.55	28.7	1	46	38.3	20.00	0.14587412	0.3512430	0.3516257
17	303	53	34.8	37 12.86	26.7	1	47	16.8	18.54	0.14545718	0.3520051	0.3523812
19	305	8	4.7	37 17.02	24.7	1	47	52.4	17.07	0.14505503	0.3527544	0.3531244
21	306	22	42.8	+ 37 21.02	+ 22.6	— 1	48	25.1	— 15.56	0.14466793	0.3534916	0.3538561
23	307	37	28.7	37 24.88	20.5	1	48	54.7	14.04	0.14429612	0.3542180	0.3545775
25	308	52	22.2	37 28.60	18.3	1	49	21.2	12.51	0.14393985	0.3549345	0.3552890
27	310	7	23.0	37 32.16	16.0	1	49	44.7	10.97	0.14359935	0.3556413	0.3559916
29	311	22	30.7	37 35.53	13.8	1	50	5.1	9.41	0.14327484	0.3563397	0.3566854
31	312	37	45.0	+ 37 38.74	+ 11.5	— 1	50	22.3	— 7.84	0.14296654	0.3570289	0.3573702
33	313	53	5.6	+ 37 41.78	+ 9.2	— 1	50	36.4	— 6.26	0.14267465	0.3577093	

JUPITER.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
Jan. 1	263 25 37.4	+ 4 50.86	— 14.3	+ 0 21 40.5	— 6.40	0.7221429	0.7938551	0.7932188
5	263 45 1.1	4 51.01	14.0	0 21 14.9	6.41	0.7220283	0.7925231	0.7917681
9	264 4 25.4	4 51.16	13.7	0 20 49.3	6.42	0.7219135	0.7909539	0.7900806
13	264 23 50.4	4 51.32	13.5	0 20 23.6	6.43	0.7217985	0.7891483	0.7881568
17	264 43 16.0	4 51.47	13.2	0 19 57.8	6.44	0.7216833	0.7871064	0.7859972
21	265 2 42.2	+ 4 51.62	— 13.0	+ 0 19 32.1	— 6.46	0.7215678	0.7848296	0.7836040
25	265 22 9.0	4 51.78	12.7	0 19 6.2	6.47	0.7214521	0.7823211	0.7809813
29	265 41 36.4	4 51.94	12.4	0 18 40.3	6.48	0.7213362	0.7795853	0.7781337
Feb. 2	266 1 4.5	4 52.09	12.2	0 18 14.4	6.49	0.7212201	0.7766271	0.7750657
6	266 20 33.2	4 52.25	11.9	0 17 48.4	6.51	0.7211037	0.7734502	0.7717808
10	266 40 2.5	+ 4 52.40	— 11.6	+ 0 17 22.3	— 6.52	0.7209871	0.7700582	0.7682826
14	266 59 32.4	4 52.56	11.3	0 16 56.2	6.53	0.7208703	0.7664547	0.7645750
18	267 19 2.9	4 52.72	11.0	0 16 30.1	6.54	0.7207532	0.7626446	0.7606645
22	267 38 34.1	4 52.88	10.8	0 16 3.9	6.55	0.7206360	0.7586358	0.7565591
26	267 58 5.9	4 53.03	10.5	0 15 37.7	6.56	0.7205186	0.7544359	0.7522674
Mar. 2	268 17 38.4	+ 4 53.19	— 10.2	+ 0 15 11.4	— 6.57	0.7204010	0.7500548	0.7477991
6	268 37 11.5	4 53.35	9.9	0 14 45.1	6.58	0.7202832	0.7455014	0.7431626
10	268 56 45.2	4 53.51	9.6	0 14 18.7	6.59	0.7201652	0.7407840	0.7383670
14	269 16 19.6	4 53.67	9.3	0 13 52.3	6.60	0.7200470	0.7359128	0.7334226
18	269 35 54.6	4 53.83	9.1	0 13 25.9	6.61	0.7199287	0.7308985	0.7283419
22	269 55 30.2	+ 4 53.99	— 8.8	+ 0 12 59.4	— 6.62	0.7198102	0.7257551	0.7231402
26	270 15 6.5	4 54.15	8.5	0 12 32.9	6.63	0.7196915	0.7204992	0.7178345
30	270 34 43.5	4 54.31	8.2	0 12 6.3	6.64	0.7195726	0.7151481	0.7124423
Apr. 3	270 54 21.1	4 54.47	7.9	0 11 39.7	6.65	0.7194536	0.7097192	0.7069807
7	271 13 59.3	4 54.63	7.6	0 11 13.1	6.66	0.7193344	0.7042295	0.7014678
11	271 33 38.1	+ 4 54.79	— 7.3	+ 0 10 46.4	— 6.67	0.7192150	0.6986984	0.6959240
15	271 53 17.6	4 54.96	7.0	0 10 19.7	6.68	0.7190954	0.6931475	0.6903720
19	272 12 57.8	4 55.12	6.7	0 9 52.9	6.69	0.7189756	0.6876010	0.6848383
23	272 32 38.6	4 55.28	6.4	0 9 26.1	6.70	0.7188557	0.6820873	0.6793515
27	272 52 20.1	4 55.45	6.1	0 8 59.3	6.71	0.7187357	0.6766345	0.6739397
May 1	273 12 2.2	+ 4 55.61	— 5.8	+ 0 8 32.5	— 6.71	0.7186156	0.6712708	0.6686311
5	273 31 44.9	4 55.77	5.5	0 8 5.6	6.72	0.7184954	0.6660246	0.6634548
9	273 51 28.3	4 55.94	5.2	0 7 38.7	6.73	0.7183750	0.6609258	0.6584413
13	274 11 12.4	4 56.10	4.9	0 7 11.8	6.74	0.7182544	0.6560058	0.6536236
17	274 30 57.2	4 56.27	4.6	0 6 44.8	6.75	0.7181337	0.6512992	0.6490371
21	274 50 42.6	+ 4 56.43	— 4.3	+ 0 6 17.8	— 6.75	0.7180129	0.6468416	0.6447173
25	275 10 28.6	4 56.60	4.0	0 5 50.8	6.76	0.7178920	0.6426678	0.6406972
29	275 30 15.4	4 56.76	3.7	0 5 23.7	6.77	0.7177709	0.6388090	0.6370072
June 2	275 50 2.8	4 56.93	3.4	0 4 56.6	6.77	0.7176497	0.6352953	0.6336768
6	276 9 50.8	4 57.09	3.1	0 4 29.5	6.78	0.7175285	0.6321551	0.6307334
10	276 29 39.5	+ 4 57.26	— 2.8	+ 0 4 2.4	— 6.78	0.7174072	0.6294151	0.6282038
14	276 49 28.9	4 57.42	2.5	0 3 35.3	6.79	0.7172858	0.6271022	0.6261137
18	277 9 18.9	4 57.59	2.1	0 3 8.1	6.79	0.7171643	0.6252405	0.6244845
22	277 29 9.6	4 57.76	1.8	0 2 40.9	6.80	0.7170427	0.6233847	0.6233303
26	277 49 1.0	4 57.93	1.5	0 2 13.7	6.80	0.7169210	0.6229343	0.6226599
30	278 8 53.0	+ 4 58.09	— 1.2	+ 0 1 46.5	— 6.81	0.7167991	0.6225075	0.6224774
July 4	278 28 45.7	+ 4 58.26	— 0.9	+ 0 1 19.2	— 6.81	0.7166771	0.6225692	0.6227830

JUPITER.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Inter- mediate Date.
July 4	278 28 45.7	+ 4 58.26	— 0.9	+ 0 1 19.2	— 6.81	0.7166771	0.6225692	0.6227830
8	278 48 39.1	4 58.43	0.6	0 0 52.0	6.82	0.7165551	0.6231179	0.6235733
12	279 8 33.2	4 58.60	— 0.3	+ 0 0 24.7	6.82	0.7164330	0.6241484	0.6248422
16	279 28 27.9	4 58.77	0.0	— 0 0 2.6	6.83	0.7163109	0.6256524	0.6265770
20	279 48 23.3	4 58.93	+ 0.3	0 0 29.9	6.83	0.7161887	0.6276134	0.6287586
24	280 8 19.4	+ 4 59.10	+ 0.6	— 0 0 57.3	— 6.84	0.7160664	0.6300093	0.6313625
28	280 28 16.1	4 59.27	0.9	0 1 24.6	6.84	0.7159440	0.6328145	0.6343621
Aug. 1	280 48 13.6	4 59.44	1.3	0 1 52.0	6.84	0.7158216	0.6360016	0.6377292
5	281 8 11.7	4 59.61	1.6	0 2 19.3	6.84	0.7156992	0.6395416	0.6414354
9	281 28 10.4	4 59.78	1.9	0 2 46.7	6.84	0.7155767	0.6434064	0.6454510
13	281 48 9.9	+ 4 59.95	+ 2.2	— 0 3 14.1	— 6.85	0.7154542	0.6475648	0.6497438
17	282 8 10.0	5 0.12	2.5	0 3 41.5	6.85	0.7153316	0.6519835	0.6542794
21	282 28 10.8	5 0.29	2.8	0 4 8.9	6.85	0.7152090	0.6566271	0.6590219
25	282 48 12.3	5 0.46	3.1	0 4 36.3	6.85	0.7150864	0.6614602	0.6639382
29	283 8 14.5	5 0.63	3.4	0 5 3.7	6.86	0.7149638	0.6664518	0.6689966
Sept. 2	283 28 17.3	+ 5 0.80	+ 3.7	— 0 5 31.2	— 6.86	0.7148412	0.6715694	0.6741668
6	283 48 20.9	5 0.97	4.1	0 5 58.6	6.86	0.7147186	0.6767853	0.6794215
10	284 8 25.1	5 1.14	4.4	0 6 26.0	6.86	0.7145959	0.6820717	0.6847323
14	284 28 30.0	5 1.31	4.7	0 6 53.5	6.86	0.7144732	0.6873999	0.6900711
18	284 48 35.5	5 1.48	5.0	0 7 20.9	6.86	0.7143505	0.6927428	0.6954116
22	285 8 41.8	+ 5 1.65	+ 5.3	— 0 7 48.3	— 6.86	0.7142278	0.6980745	0.7007286
26	285 28 48.7	5 1.82	5.6	0 8 15.7	6.86	0.7141051	0.7033716	0.7060009
30	285 48 56.3	5 1.99	5.9	0 8 43.2	6.86	0.7139824	0.7086146	0.7112103
Oct. 4	286 9 4.6	5 2.16	6.2	0 9 10.6	6.86	0.7138597	0.7137861	0.7163398
8	286 29 13.6	5 2.32	6.5	0 9 38.0	6.86	0.7137371	0.7188691	0.7213719
12	286 49 23.2	+ 5 2.50	+ 6.8	— 0 10 5.5	— 6.86	0.7136145	0.7238461	0.7262896
16	287 9 33.6	5 2.67	7.1	0 10 32.9	6.85	0.7134919	0.7287006	0.7310771
20	287 29 44.6	5 2.84	7.4	0 11 0.3	6.85	0.7133694	0.7334178	0.7357210
24	287 49 56.3	5 3.01	7.7	0 11 27.7	6.85	0.7132469	0.7379854	0.7402093
28	288 10 8.7	5 3.18	8.0	0 11 55.1	6.85	0.7131244	0.7423921	0.7445327
Nov. 1	288 30 21.8	+ 5 3.35	+ 8.3	— 0 12 22.5	— 6.84	0.7130020	0.7466304	0.7486839
5	288 50 35.5	5 3.53	8.6	0 12 49.8	6.84	0.7128796	0.7506920	0.7526533
9	289 10 50.0	5 3.70	8.9	0 13 17.2	6.84	0.7127573	0.7545668	0.7564311
13	289 31 5.1	5 3.87	9.2	0 13 44.5	6.84	0.7126350	0.7582456	0.7600094
17	289 51 20.9	5 4.04	9.5	0 14 11.9	6.83	0.7125127	0.7617217	0.7633814
21	290 11 37.4	+ 5 4.21	+ 9.8	— 0 14 39.2	— 6.83	0.7123905	0.7649881	0.7665414
25	290 31 54.6	5 4.38	10.1	0 15 6.5	6.83	0.7122684	0.7680409	0.7694862
29	290 52 12.5	5 4.55	10.4	0 15 33.8	6.82	0.7121464	0.7708767	0.7722120
Dec. 3	291 12 31.1	5 4.72	10.7	0 16 1.1	6.82	0.7120245	0.7734917	0.7747153
7	291 32 50.3	5 4.89	11.0	0 16 28.3	6.81	0.7119026	0.7758819	0.7769907
11	291 53 10.2	+ 5 5.06	+ 11.3	— 0 16 55.6	— 6.81	0.7117808	0.7780414	0.7790337
15	292 13 30.8	5 5.24	11.6	0 17 22.8	6.80	0.7116591	0.7799673	0.7808417
19	292 33 52.1	5 5.41	11.9	0 17 50.0	6.80	0.7115375	0.7816569	0.7824127
23	292 54 14.1	5 5.58	12.1	0 18 17.2	6.79	0.7114160	0.7831091	0.7837462
27	293 14 36.7	5 5.75	12.4	0 18 44.3	6.78	0.7112946	0.7843239	0.7848420
31	293 35 0.1	+ 5 5.92	+ 12.7	— 0 19 11.5	— 6.78	0.7111733	0.7853002	0.7856994
35	293 55 24.1	+ 5 6.10	+ 13.0	— 0 19 38.6	— 6.77	0.7110522		

SATURN.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
											At Date.	At Intermediate Date.
Jan. 1	277	30	20.4	+ 1 48.28	— 0 49.7	+ 0	39	28.5	— 4.54	1.0029131	1.0433338	1.0432485
5	277	37	33.5	1 48.28	0 49.3	0	39	10.4	4.54	1.0029080	1.0431226	1.0429558
9	277	44	46.6	1 48.29	0 49.0	0	38	52.2	4.54	1.0029028	1.0427482	1.0424998
13	277	51	59.8	1 48.29	0 48.6	0	38	34.0	4.54	1.0028974	1.0422108	1.0418812
17	277	59	13.0	1 48.29	0 48.3	0	38	15.9	4.55	1.0028919	1.0415112	1.0411010
21	278	6	26.2	+ 1 48.30	— 0 47.9	+ 0	37	57.7	— 4.55	1.0028863	1.0406509	1.0401611
25	278	13	39.3	1 48.30	0 47.5	0	37	39.5	4.55	1.0028806	1.0396322	1.0390645
29	278	20	52.5	1 48.30	0 47.2	0	37	21.3	4.55	1.0028748	1.0384585	1.0378149
Feb. 2	278	28	5.8	1 48.31	0 46.8	0	37	3.0	4.56	1.0028689	1.0371340	1.0364164
6	278	35	19.0	1 48.31	0 46.5	0	36	44.8	4.56	1.0028629	1.0356625	1.0348727
10	278	42	32.2	+ 1 48.31	— 0 46.1	+ 0	36	26.5	— 4.56	1.0028567	1.0340476	1.0331876
14	278	49	45.5	1 48.31	0 45.7	0	36	8.3	4.56	1.0028507	1.0322934	1.0313653
18	278	56	58.7	1 48.32	0 45.4	0	35	50.0	4.56	1.0028439	1.0304043	1.0294110
22	279	4	12.0	1 48.32	0 45.0	0	35	31.8	4.57	1.0028373	1.0283863	1.0273310
26	279	11	25.3	1 48.32	0 44.7	0	35	13.5	4.57	1.0028306	1.0262462	1.0251332
Mar. 2	279	18	38.6	+ 1 48.33	— 0 44.3	+ 0	34	55.2	— 4.57	1.0028238	1.0239927	1.0228255
6	279	25	51.9	1 48.33	0 43.9	0	34	36.9	4.58	1.0028169	1.0216324	1.0204145
10	279	33	5.2	1 48.33	0 43.6	0	34	18.6	4.58	1.0028099	1.0191725	1.0179075
14	279	40	18.6	1 48.34	0 43.2	0	34	0.2	4.58	1.0028029	1.0166207	1.0153132
18	279	47	31.9	1 48.34	0 42.8	0	33	41.9	4.58	1.0027957	1.0139861	1.0126403
22	279	54	45.3	+ 1 48.34	— 0 42.5	+ 0	33	23.6	— 4.59	1.0027884	1.0112774	1.0098991
26	280	1	58.7	1 48.35	0 42.1	0	33	5.2	4.59	1.0027810	1.0085068	1.0071018
30	280	9	12.1	1 48.35	0 41.7	0	32	46.8	4.59	1.0027734	1.0056855	1.0042591
Apr. 3	280	16	25.5	1 48.36	0 41.3	0	32	28.5	4.59	1.0027657	1.0028242	1.0013822
7	280	23	38.9	1 48.36	0 41.0	0	32	10.1	4.59	1.0027579	0.9999346	0.9984826
11	280	30	52.4	+ 1 48.36	— 0 40.6	+ 0	31	51.7	— 4.60	1.0027500	0.9970280	0.9955722
15	280	38	5.8	1 48.37	0 40.2	0	31	33.3	4.60	1.0027420	0.9941171	0.9926642
19	280	45	19.3	1 48.37	0 39.9	0	31	14.9	4.60	1.0027338	0.9912152	0.9897722
23	280	52	32.8	1 48.37	0 39.5	0	30	56.5	4.60	1.0027255	0.9883370	0.9869117
27	280	59	46.3	1 48.38	0 39.1	0	30	38.1	4.61	1.0027171	0.9854978	0.9840970
May 1	281	6	59.8	+ 1 48.38	— 0 38.7	+ 0	30	19.6	— 4.61	1.0027086	0.9827110	0.9813416
5	281	14	13.3	1 48.39	0 38.4	0	30	1.2	4.61	1.0027000	0.9799906	0.9786598
9	281	21	26.9	1 48.39	0 38.0	0	29	42.7	4.61	1.0026912	0.9773507	0.9760650
13	281	28	40.4	1 48.40	0 37.6	0	29	24.3	4.62	1.0026823	0.9748047	0.9735719
17	281	35	54.0	1 48.40	0 37.2	0	29	5.8	4.62	1.0026733	0.9723684	0.9711963
21	281	43	7.6	+ 1 48.40	— 0 36.9	+ 0	28	47.3	— 4.62	1.0026642	0.9700572	0.9689531
25	281	50	21.2	1 48.41	0 36.5	0	28	28.9	4.62	1.0026550	0.9678854	0.9668559
29	281	57	34.8	1 48.41	0 36.1	0	28	10.4	4.63	1.0026456	0.9658659	0.9649170
June 2	282	4	48.5	1 48.41	0 35.7	0	27	51.9	4.63	1.0026361	0.9640106	0.9631482
6	282	12	2.2	1 48.42	0 35.3	0	27	33.3	4.63	1.0026265	0.9623310	0.9615604
10	282	19	15.9	+ 1 48.42	— 0 34.9	+ 0	27	14.8	— 4.63	1.0026168	0.9608378	0.9601645
14	282	26	29.6	1 48.43	0 34.6	0	26	56.3	4.63	1.0026070	0.9595417	0.9589708
18	282	33	43.3	1 48.43	0 34.2	0	26	37.8	4.63	1.0025971	0.9584526	0.9579884
22	282	40	57.0	1 48.44	0 33.8	0	26	19.2	4.64	1.0025870	0.9575787	0.9572241
26	282	48	10.8	1 48.44	0 33.4	0	26	0.7	4.64	1.0025768	0.9569251	0.9566824
30	282	55	24.6	+ 1 48.45	— 0 33.0	+ 0	25	42.1	— 4.64	1.0025665	0.9564960	0.9563661
July 4	283	2	38.4	+ 1 48.45	— 0 32.6	+ 0	25	23.5	— 4.64	1.0025561	0.9562930	0.9562771

SATURN.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
	°	'	"			°	'	"			At Date.	At Intermediate Date.
July 4	283	2	38.4	+ 1 48.45	— 0 32.6	+ 0	25	23.5	— 4.64	1.0025561	0.9562930	0.9562771
8	283	9	52.2	1 48.46	0 32.2	0	25	5.0	4.64	1.0025456	0.9563182	0.9564166
12	283	17	6.1	1 48.46	0 31.8	0	24	46.4	4.65	1.0025350	0.9565720	0.9567845
16	283	24	19.9	1 48.47	0 31.5	0	24	27.8	4.65	1.0025243	0.9570536	0.9573791
20	283	31	33.8	1 48.48	0 31.1	0	24	9.2	4.65	1.0025135	0.9577600	0.9581958
24	283	38	47.7	+ 1 48.48	— 0 30.7	+ 0	23	50.6	— 4.65	1.0025025	0.9586852	0.9592274
28	283	46	1.6	1 48.49	0 30.3	0	23	32.0	4.65	1.0024914	0.9598213	0.9604661
Aug. 1	283	53	15.6	1 48.49	0 29.9	0	23	13.4	4.65	1.0024801	0.9611606	0.9619034
5	284	0	29.6	1 48.50	0 29.5	0	22	54.8	4.66	1.0024687	0.9626935	0.9635300
9	284	7	43.6	1 48.50	0 29.1	0	22	36.1	4.66	1.0024572	0.9644113	0.9653362
13	284	14	57.6	+ 1 48.51	— 0 28.7	+ 0	22	17.5	— 4.66	1.0024456	0.9663032	0.9673109
17	284	22	11.6	1 48.51	0 28.3	0	21	58.8	4.66	1.0024340	0.9683574	0.9694409
21	284	29	25.7	1 48.52	0 28.0	0	21	40.2	4.66	1.0024223	0.9705596	0.9717118
25	284	36	39.8	1 48.52	0 27.6	0	21	21.5	4.67	1.0024105	0.9728955	0.9741087
29	284	43	53.9	1 48.53	0 27.2	0	21	2.9	4.67	1.0023985	0.9753500	0.9766177
Sept. 2	284	51	8.0	+ 1 48.54	— 0 26.8	+ 0	20	44.2	— 4.67	1.0023864	0.9779100	0.9792249
6	284	58	22.2	1 48.54	0 26.4	0	20	25.5	4.67	1.0023741	0.9805610	0.9819169
10	285	5	36.4	1 48.55	0 26.0	0	20	6.8	4.67	1.0023617	0.9832903	0.9846793
14	285	12	50.6	1 48.55	0 25.6	0	19	48.1	4.68	1.0023492	0.9860820	0.9874966
18	285	20	4.8	1 48.56	0 25.2	0	19	29.4	4.68	1.0023366	0.9889213	0.9903541
22	285	27	19.1	+ 1 48.57	— 0 24.8	+ 0	19	10.7	— 4.68	1.0023239	0.9917931	0.9932364
26	285	34	33.4	1 48.57	0 24.4	0	18	52.0	4.68	1.0023111	0.9946825	0.9961300
30	285	41	47.7	1 48.58	0 24.0	0	18	33.3	4.68	1.0022982	0.9975771	0.9990226
Oct. 4	285	49	2.0	1 48.59	0 23.6	0	18	14.6	4.68	1.0022852	1.0004647	1.0019019
8	285	56	16.4	1 48.60	0 23.2	0	17	55.8	4.68	1.0022720	1.0033326	1.0047555
12	286	3	30.8	+ 1 48.60	— 0 22.8	+ 0	17	37.1	— 4.69	1.0022587	1.0061688	1.0075710
16	286	10	45.1	1 48.61	0 22.4	0	17	18.4	4.69	1.0022452	1.0089605	1.0103357
20	286	17	59.6	1 48.61	0 22.0	0	16	59.6	4.69	1.0022316	1.0116955	1.0130384
24	286	25	14.1	1 48.62	0 21.6	0	16	40.9	4.69	1.0022179	1.0143636	1.0156694
28	286	32	28.6	1 48.63	0 21.2	0	16	22.1	4.69	1.0022041	1.0169550	1.0182194
Nov. 1	286	39	43.1	+ 1 48.63	— 0 20.8	+ 0	16	3.3	— 4.69	1.0021902	1.0194615	1.0206799
5	286	46	57.6	1 48.64	0 20.4	0	15	44.6	4.69	1.0021762	1.0218742	1.0230426
9	286	54	12.2	1 48.64	0 20.0	0	15	25.8	4.70	1.0021620	1.0241844	1.0252985
13	287	1	26.8	1 48.65	0 19.6	0	15	7.0	4.70	1.0021477	1.0263840	1.0274397
17	287	8	41.4	1 48.66	0 19.2	0	14	48.2	4.70	1.0021333	1.0284649	1.0294586
21	287	15	56.0	+ 1 48.66	— 0 18.8	+ 0	14	29.4	— 4.70	1.0021188	1.0304204	1.0313495
25	287	23	10.7	1 48.67	0 18.4	0	14	10.6	4.70	1.0021042	1.0322453	1.0331073
29	287	30	25.4	1 48.67	0 18.0	0	13	51.8	4.70	1.0020896	1.0339348	1.0347273
Dec. 3	287	37	40.2	1 48.68	0 17.6	0	13	33.0	4.70	1.0020749	1.0354842	1.0362048
7	287	44	54.9	1 48.69	0 17.1	0	13	14.2	4.70	1.0020600	1.0368884	1.0375345
11	287	52	9.7	+ 1 48.70	— 0 16.7	+ 0	12	55.4	— 4.70	1.0020450	1.0381425	1.0387119
15	287	59	24.6	1 48.71	0 16.3	0	12	36.6	4.71	1.0020298	1.0392425	1.0397338
19	288	6	39.4	1 48.72	0 15.9	0	12	17.8	4.71	1.0020145	1.0401855	1.0405975
23	288	13	54.3	1 48.73	0 15.5	0	11	58.9	4.71	1.0019991	1.0409695	1.0413015
27	288	21	9.3	1 48.73	0 15.1	0	11	40.1	4.71	1.0019836	1.0415933	1.0418446
31	288	28	24.2	+ 1 48.74	— 0 14.7	+ 0	11	21.3	— 4.71	1.0019680	1.0420553	1.0422250
35	288	35	39.2	+ 1 48.75	— 0 14.3	+ 0	11	2.4	— 4.71	1.0019522		

URANUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
	°	'	"			°	'	"			At Date.	At Intermediate Date.
Jan. 5	253	5	9.6	+ 43.01	— 0.1	+ 0	0	23.5	— 0.58	1.2801368	1.2989913	1.2982127
13	253	10	53.6	43.00	0.1	0	0	18.8	0.58	1.2801700	1.2973494	1.2964045
21	253	16	37.6	42.99	— 0.1	0	0	14.2	0.58	1.2802032	1.2953813	1.2942842
29	253	22	21.5	42.99	0.0	0	0	9.6	0.58	1.2802364	1.2931181	1.2918881
Feb. 6	253	28	5.4	42.98	0.0	0	0	4.9	0.58	1.2802696	1.2905993	1.2892565
14	253	33	49.2	+ 42.97	0.0	+ 0	0	0.3	— 0.58	1.2803027	1.2878650	1.2864310
22	253	39	33.0	42.97	0.0	— 0	0	4.3	0.58	1.2803359	1.2849609	1.2834619
Mar. 2	253	45	16.7	42.96	+ 0.1	0	0	9.0	0.58	1.2803690	1.2819410	1.2804049
10	253	51	0.3	42.95	0.1	0	0	13.6	0.58	1.2804022	1.2788604	1.2773145
18	253	56	43.9	42.95	0.1	0	0	18.3	0.58	1.2804353	1.2757748	1.2742489
26	254	2	27.5	+ 42.94	+ 0.2	— 0	0	22.9	— 0.58	1.2804684	1.2727447	1.2712702
Apr. 3	254	8	11.0	42.93	0.2	0	0	27.5	0.58	1.2805015	1.2698327	1.2684391
11	254	13	54.4	42.92	0.2	0	0	32.2	0.58	1.2805346	1.2670964	1.2658116
19	254	19	37.8	42.92	0.3	0	0	36.8	0.58	1.2805677	1.2645921	1.2634448
27	254	25	21.1	42.91	0.3	0	0	41.4	0.58	1.2806007	1.2623762	1.2613918
May 5	254	31	4.4	+ 42.90	+ 0.3	— 0	0	46.1	— 0.58	1.2806338	1.2604967	1.2596954
13	254	36	47.6	42.90	0.4	0	0	50.7	0.58	1.2806668	1.2589926	1.2583928
21	254	42	30.7	42.89	0.4	0	0	55.3	0.58	1.2806998	1.2578998	1.2575161
29	254	48	13.8	42.88	0.4	0	1	0.0	0.58	1.2807329	1.2572438	1.2570837
June 6	254	53	56.9	42.88	0.5	0	1	4.6	0.58	1.2807659	1.2570365	1.2571027
14	254	59	39.9	+ 42.87	+ 0.5	— 0	1	9.2	— 0.58	1.2807989	1.2572822	1.2575743
22	255	5	22.8	42.86	0.5	0	1	13.8	0.58	1.2808319	1.2579772	1.2584880
30	255	11	5.7	42.86	0.5	0	1	18.5	0.58	1.2808649	1.2591034	1.2598198
July 8	255	16	48.5	42.85	0.6	0	1	23.1	0.58	1.2808978	1.2606332	1.2615397
16	255	22	31.3	42.84	0.6	0	1	27.7	0.58	1.2809308	1.2625347	1.2636124
24	255	28	14.0	+ 42.84	+ 0.6	— 0	1	32.3	— 0.58	1.2809638	1.2647667	1.2659911
Aug. 1	255	33	56.7	42.83	0.7	0	1	36.9	0.58	1.2809967	1.2672789	1.2686241
9	255	39	39.3	42.82	0.7	0	1	41.6	0.58	1.2810296	1.2700202	1.2714608
17	255	45	21.8	42.81	0.7	0	1	46.2	0.58	1.2810626	1.2729383	1.2744450
25	255	51	4.3	42.81	0.8	0	1	50.8	0.58	1.2810955	1.2759738	1.2775172
Sept. 2	255	56	46.8	+ 42.80	+ 0.8	— 0	1	55.4	— 0.58	1.2811284	1.2790685	1.2806215
10	256	2	29.1	42.79	0.8	0	2	0.0	0.58	1.2811613	1.2821690	1.2837042
18	256	8	11.5	42.79	0.9	0	2	4.6	0.58	1.2811942	1.2852199	1.2867093
26	256	13	53.7	42.78	0.9	0	2	9.2	0.58	1.2812271	1.2881662	1.2895851
Oct. 4	256	19	36.0	42.77	0.9	0	2	13.8	0.58	1.2812600	1.2909606	1.2922868
12	256	25	18.1	+ 42.77	+ 0.9	— 0	2	18.5	— 0.58	1.2812928	1.2935584	1.2947703
20	256	31	0.2	42.76	1.0	0	2	23.1	0.58	1.2813257	1.2959168	1.2969939
28	256	36	42.3	42.75	1.0	0	2	27.7	0.58	1.2813585	1.2979977	1.2989249
Nov. 5	256	42	24.3	42.75	1.0	0	2	32.3	0.58	1.2813914	1.2997718	1.3005350
13	256	48	6.2	42.74	1.1	0	2	36.9	0.58	1.2814242	1.3012108	1.3017967
21	256	53	48.1	+ 42.73	+ 1.1	— 0	2	41.5	— 0.58	1.2814570	1.3022906	1.3026910
29	256	59	30.0	42.73	1.1	0	2	46.1	0.58	1.2814898	1.3029967	1.3032065
Dec. 7	257	5	11.8	42.72	1.2	0	2	50.7	0.58	1.2815226	1.3033190	1.3033333
15	257	10	53.5	42.71	1.2	0	2	55.3	0.58	1.2815553	1.3032493	1.3030676
23	257	16	35.2	42.70	1.2	0	2	59.9	0.58	1.2815881	1.3027889	1.3024148
31	257	22	16.8	+ 42.70	+ 1.3	— 0	3	4.5	— 0.58	1.2816209	1.3019464	1.3013849
39	257	27	58.3	+ 42.69	+ 1.3	— 0	3	9.1	— 0.58	1.2816536		

NEPTUNE.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Interme- diate Date.
Jan. 5	87 56 26.3	+ 21.88	- 49.6	- I 12 29.0	+ 0.50	I.4753481	I.4614518	I.4617943
13	87 59 21.4	21.88	49.6	I 12 25.0	0.50	I.4753503	I.4622058	I.4626844
21	88 2 16.4	21.88	49.6	I 12 21.0	0.50	I.4753525	I.4632279	I.4638325
29	88 5 11.5	21.88	49.6	I 12 17.0	0.50	I.4753548	I.4644941	I.4652089
Feb. 6	88 8 6.5	21.88	49.5	I 12 13.1	0.50	I.4753570	I.4659728	I.4667820
14	88 11 1.5	+ 21.88	- 49.5	- I 12 9.1	+ 0.50	I.4753593	I.4676319	I.4685183
22	88 13 56.6	21.88	49.5	I 12 5.1	0.50	I.4753616	I.4694357	I.4703791
Mar. 2	88 16 51.6	21.88	49.5	I 12 1.1	0.50	I.4753639	I.4713435	I.4723241
10	88 19 46.6	21.88	49.5	I 11 57.2	0.50	I.4753662	I.4733161	I.4743148
18	88 22 41.7	21.88	49.5	I 11 53.2	0.50	I.4753685	I.4753153	I.4763125
26	88 25 36.7	+ 21.88	- 49.5	- I 11 49.2	+ 0.50	I.4753708	I.4773016	I.4782783
Apr. 3	88 28 31.7	21.88	49.5	I 11 45.2	0.50	I.4753731	I.4792381	I.4801769
11	88 31 26.7	21.88	49.5	I 11 41.2	0.50	I.4753755	I.4810911	I.4819767
19	88 34 21.8	21.88	49.5	I 11 37.2	0.50	I.4753778	I.4828300	I.4836471
27	88 37 16.8	21.88	49.5	I 11 33.2	0.50	I.4753802	I.4844250	I.4851604
May 5	88 40 11.8	+ 21.88	- 49.5	- I 11 29.2	+ 0.50	I.4753826	I.4858510	I.4864944
13	88 43 6.8	21.88	49.4	I 11 25.2	0.50	I.4753849	I.4870882	I.4876299
21	88 46 1.8	21.88	49.4	I 11 21.1	0.50	I.4753873	I.4881176	I.4885494
29	88 48 56.8	21.88	49.4	I 11 17.1	0.50	I.4753897	I.4889239	I.4892400
June 6	88 51 51.9	21.88	49.4	I 11 13.1	0.50	I.4753921	I.4894971	I.4896942
14	88 54 46.9	+ 21.88	- 49.4	- I 11 9.0	+ 0.50	I.4753946	I.4898305	I.4899049
22	88 57 41.9	21.88	49.4	I 11 5.0	0.51	I.4753970	I.4899178	I.4898689
30	89 0 36.9	21.88	49.4	I 11 0.9	0.51	I.4753994	I.4897589	I.4895883
July 8	89 3 31.9	21.88	49.4	I 10 56.9	0.51	I.4754019	I.4893578	I.4890678
16	89 6 26.9	21.88	49.4	I 10 52.8	0.51	I.4754043	I.4887191	I.4883129
24	89 9 21.9	+ 21.88	- 49.4	- I 10 48.8	+ 0.51	I.4754068	I.4878512	I.4873354
Aug. 1	89 12 16.9	21.88	49.3	I 10 44.7	0.51	I.4754093	I.4867678	I.4861504
9	89 15 11.9	21.88	49.3	I 10 40.7	0.51	I.4754118	I.4854853	I.4847744
17	89 18 6.9	21.88	49.3	I 10 36.6	0.51	I.4754143	I.4840209	I.4832275
25	89 21 1.9	21.87	49.3	I 10 32.6	0.51	I.4754168	I.4823976	I.4815341
Sept. 2	89 23 56.9	+ 21.87	- 49.3	- I 10 28.5	+ 0.51	I.4754193	I.4806408	I.4797214
10	89 26 51.9	21.87	49.3	I 10 24.4	0.51	I.4754219	I.4787798	I.4778193
18	89 29 46.9	21.87	49.3	I 10 20.3	0.51	I.4754244	I.4768447	I.4758606
26	89 32 41.9	21.87	49.3	I 10 16.3	0.51	I.4754270	I.4748714	I.4738814
Oct. 4	89 35 36.9	21.87	49.3	I 10 12.2	0.51	I.4754295	I.4728952	I.4719170
12	89 38 31.9	+ 21.87	- 49.3	- I 10 8.1	+ 0.51	I.4754321	I.4709521	I.4700057
20	89 41 26.9	21.87	49.2	I 10 4.0	0.51	I.4754347	I.4690826	I.4681878
28	89 44 21.9	21.87	49.2	I 9 59.9	0.51	I.4754374	I.4673257	I.4665007
Nov. 5	89 47 16.9	21.87	49.2	I 9 55.8	0.51	I.4754400	I.4657174	I.4649803
13	89 50 11.9	21.87	49.2	I 9 51.8	0.51	I.4754426	I.4642938	I.4636619
21	89 53 6.9	+ 21.87	- 49.2	- I 9 47.7	+ 0.51	I.4754452	I.4630884	I.4625767
29	89 56 1.8	21.87	49.2	I 9 43.6	0.51	I.4754479	I.4621293	I.4617491
Dec. 7	89 58 56.8	21.87	49.2	I 9 39.5	0.51	I.4754506	I.4614384	I.4612000
15	90 1 51.8	21.87	49.2	I 9 35.4	0.51	I.4754532	I.4610351	I.4609445
23	90 4 46.8	21.87	49.2	I 9 31.2	0.51	I.4754559	I.4609288	I.4609882
31	90 7 41.8	+ 21.87	- 49.1	- I 9 27.1	+ 0.51	I.4754586	I.4611218	I.4613297
39	90 10 36.8	+ 21.87	- 49.1	- I 9 23.0	+ 0.51	I.4754613		

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. o.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. o.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. o.
	Noon.	Midnight.		Noon.	Midnight.		Noon.	Midnight.	
Jan. 0	+0.1606746	+0.1692943	-709	-0.8898719	-0.8885196	-11	-0.3860178	-0.3854314	-268
1	0.1779010	0.1864933	718	0.8870986	0.8856088	26	0.3848152	0.3841693	273
2	0.1950708	0.2036330	727	0.8840503	0.8824234	41	0.3834937	0.3827883	278
3	0.2121793	0.2207090	735	0.8807282	0.8789649	55	0.3820532	0.3812885	284
4	0.2292215	0.2377162	742	0.8771335	0.8752342	70	0.3804943	0.3796707	289
5	+0.2461924	+0.2546496	-748	-0.8732672	-0.8712326	-85	-0.3788177	-0.3779354	-294
6	0.2630872	0.2715046	754	0.8691305	0.8669611	100	0.3770238	0.3760828	299
7	0.2799012	0.2882762	759	0.8647245	0.8624209	115	0.3751127	0.3741135	304
8	0.2966290	0.3049592	764	0.8600504	0.8576132	130	0.3730852	0.3720278	309
9	0.3132661	0.3215487	768	0.8551094	0.8525392	145	0.3709417	0.3698268	314
10	+0.3298067	+0.3380395	-771	-0.8499027	-0.8472002	-161	-0.3686831	-0.3675106	-319
11	0.3462464	0.3544268	774	0.8444318	0.8415976	176	0.3663095	0.3650799	324
12	0.3625799	0.3707052	776	0.8386979	0.8357330	192	0.3638218	0.3625354	329
13	0.3788019	0.3868693	777	0.8327029	0.8296078	208	0.3612207	0.3598778	334
14	0.3949070	0.4029147	778	0.8264481	0.8232239	224	0.3585068	0.3571079	339
15	+0.4108913	+0.4188360	-779	-0.8199355	-0.8165831	-240	-0.3556811	-0.3542265	-344
16	0.4267483	0.4346276	779	0.8131669	0.8096872	257	0.3527442	0.3512344	348
17	0.4424732	0.4502846	779	0.8061443	0.8025383	273	0.3496972	0.3481326	353
18	0.4580610	0.4658019	778	0.7988696	0.7951386	290	0.3465409	0.3449222	358
19	0.4735065	0.4811743	777	0.7913454	0.7874903	307	0.3432765	0.3416039	363
20	+0.4888045	+0.4963965	-776	-0.7835736	-0.7795958	-324	-0.3399047	-0.3381790	-368
21	0.5039497	0.5114633	774	0.7755571	0.7714576	341	0.3364270	0.3346486	373
22	0.5189370	0.5263703	772	0.7672981	0.7630794	358	0.3328443	0.3310143	378
23	0.5337624	0.5411126	770	0.7588013	0.7544639	375	0.3291586	0.3272771	383
24	0.5484204	0.5556853	767	0.7500678	0.7456136	393	0.3253702	0.3234382	387
25	+0.5629064	+0.5700835	-763	-0.7411016	-0.7365322	-410	-0.3214812	-0.3194993	-392
26	0.5772161	0.5843036	759	0.7319058	0.7272229	428	0.3174927	0.3154616	396
27	0.5913454	0.5983410	755	0.7224839	0.7176891	446	0.3134062	0.3113265	401
28	0.6052900	0.6121918	750	0.7128390	0.7079340	463	0.3092229	0.3070956	405
29	0.6190461	0.6258523	745	0.7029746	0.6979611	481	0.3049446	0.3027701	409
30	+0.6326099	+0.6393185	-740	-0.6928940	-0.6877737	-498	-0.3005723	-0.2983516	-413
31	0.6459776	0.6525867	734	0.6826006	0.6773751	515	0.2961079	0.2938414	417
Feb. 1	0.6591454	0.6656535	728	0.6720976	0.6667684	532	0.2915523	0.2892408	421
2	0.6721103	0.6785151	721	0.6613880	0.6559571	549	0.2869070	0.2845513	425
3	0.6848676	0.6911677	714	0.6504759	0.6449446	566	0.2821738	0.2797745	429
4	+0.6974147	+0.7036082	-706	-0.6393638	-0.6337338	-583	-0.2773536	-0.2749113	-433
5	0.7097478	0.7158330	698	0.6280551	0.6223281	600	0.2724479	0.2699636	436
6	0.7218633	0.7278383	689	0.6165532	0.6107308	617	0.2674584	0.2649326	440
7	0.7337576	0.7396207	680	0.6048614	0.5989454	634	0.2623863	0.2598198	443
8	0.7454272	0.7511766	671	0.5929832	0.5869753	651	0.2572333	0.2546268	447
9	+0.7568683	+0.7625023	-661	-0.5809220	-0.5748238	-667	-0.2520007	-0.2493551	-450
10	0.7680780	0.7735948	651	0.5686813	0.5624948	683	0.2466903	0.2440063	453
11	0.7790523	0.7844502	640	0.5562650	0.5499920	699	0.2413035	0.2385820	456
12	0.7897880	0.7950653	629	0.5436764	0.5373187	715	0.2358421	0.2330839	459
13	0.8002817	0.8054367	618	0.5309195	0.5244792	731	0.2303076	0.2275136	462
14	+0.8105300	+0.8155614	-606	-0.5179982	-0.5114770	-747	-0.2247019	-0.2218728	-465
15	+0.8205296	+0.8254351	-594	-0.5049162	-0.4983163	-762	-0.2190265	-0.2161632	-468

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X		Reduc. to Mean Eq'x of Jan. 0.	Y		Reduc. to Mean Eq'x of Jan. 0.	Z		Reduc. to Mean Eq'x of Jan. 0.
	True Equinox.	True Equinox.		True Equinox.	True Equinox.		True Equinox.	True Equinox.	
	Noon.	Midnight.	Noon.	Noon.	Midnight.	Noon.	Noon.	Midnight.	Noon.
Feb. 15	+0.8205296	+0.8254351	-594	-0.5049162	-0.4983163	-762	-0.2190265	-0.2161632	-468
16	0.8302771	0.8350554	581	0.4916778	0.4850014	777	0.2132833	0.2103869	471
17	0.8397694	0.8444188	568	0.4782872	0.4715361	792	0.2074743	0.2045457	473
18	0.8490033	0.8535224	555	0.4647486	0.4579253	807	0.2016013	0.1986414	476
19	0.8579757	0.8623629	541	0.4510667	0.4441734	821	0.1956662	0.1926760	478
20	+0.8666838	+0.8709380	-527	-0.4372459	-0.4302850	-836	-0.1896710	-0.1866516	-481
21	0.8751252	0.8792450	512	0.4232912	0.4162651	850	0.1836179	0.1805703	483
22	0.8832973	0.8872816	497	0.4092072	0.4021182	864	0.1775089	0.1744340	485
23	0.8911979	0.8950459	482	0.3949988	0.3878499	878	0.1713459	0.1682449	487
24	0.8988252	0.9025356	467	0.3806716	0.3734638	891	0.1651312	0.1620050	489
25	+0.9061769	+0.9097490	-451	-0.3662279	-0.3589647	-904	-0.1588666	-0.1557162	-491
26	0.9132517	0.9166848	435	0.3516746	0.3443582	917	0.1525542	0.1493808	493
27	0.9200480	0.9233412	419	0.3370159	0.3296484	929	0.1461961	0.1430004	494
28	0.9265643	0.9297170	402	0.3222562	0.3148398	941	0.1397939	0.1365769	495
Mar. 1	0.9327991	0.9358105	385	0.3073999	0.2999370	953	0.1333497	0.1301125	496
2	+0.9387510	+0.9416205	-368	-0.2924517	-0.2849444	-965	-0.1268655	-0.1236090	-497
3	0.9444188	0.9471458	351	0.2774158	0.2698663	976	0.1203431	0.1170682	498
4	0.9498013	0.9523852	333	0.2622965	0.2547071	987	0.1137845	0.1104922	499
5	0.9548972	0.9573373	315	0.2470985	0.2394713	998	0.1071915	0.1038828	499
6	0.9597052	0.9620009	297	0.2318260	0.2241632	1009	0.1005662	0.0972420	500
7	+0.9642242	+0.9663749	-278	-0.2164835	-0.2087873	-1019	-0.0939104	-0.0905716	-500
8	0.9684529	0.9704580	259	0.2010752	0.1933477	1029	0.0872258	0.0838734	500
9	0.9723902	0.9742492	240	0.1856055	0.1778492	1039	0.0805146	0.0771496	500
10	0.9760350	0.9777476	221	0.1700794	0.1622963	1049	0.0737787	0.0704022	500
11	0.9793867	0.9809518	201	0.1545008	0.1466931	1058	0.0670202	0.0636330	500
12	+0.9824432	+0.9838609	-181	-0.1388741	-0.1310446	-1067	-0.0602409	-0.0568442	-500
13	0.9852046	0.9864742	161	0.1232050	0.1153556	1075	0.0534430	0.0500377	499
14	0.9876697	0.9887908	141	0.1074970	0.0996300	1083	0.0466284	0.0432155	499
15	0.9898375	0.9908098	121	0.0917551	0.0838729	1091	0.0397992	0.0363798	498
16	0.9917075	0.9925305	101	0.0759841	0.0680893	1098	0.0329576	0.0295327	497
17	+0.9932788	+0.9939522	-80	-0.0601890	-0.0522838	-1105	-0.0261055	-0.0226763	-496
18	0.9945508	0.9950744	59	0.0443745	0.0364616	1112	0.0192453	0.0158128	495
19	0.9955231	0.9958968	38	0.0285458	0.0206278	1118	0.0123791	0.0089444	493
20	0.9961956	0.9964193	-17	-0.0127081	-0.0047875	1124	-0.0055091	-0.0020735	492
21	0.9965680	0.9966418	+4	+0.0031334	+0.0110540	1129	+0.0013623	+0.0047980	490
22	+0.9966408	+0.9965648	+25	+0.0189737	+0.0268917	-1135	+0.0082333	+0.0116677	-488
23	0.9964141	0.9961887	47	0.0348075	0.0427204	1140	0.0151011	0.0185334	486
24	0.9958887	0.9955142	68	0.0506298	0.0585350	1145	0.0219641	0.0253929	484
25	0.9950654	0.9945423	90	0.0664355	0.0743306	1149	0.0288197	0.0322443	481
26	0.9939450	0.9932737	112	0.0822199	0.0901026	1153	0.0356663	0.0390855	479
27	+0.9925285	+0.9917096	+134	+0.0979784	+0.1058463	-1157	+0.0425017	+0.0459145	-476
28	0.9908171	0.9898511	156	0.1137060	0.1215569	1160	0.0493237	0.0527292	473
29	0.9888118	0.9876993	179	0.1293985	0.1372302	1163	0.0561306	0.0595278	470
30	0.9865138	0.9852554	201	0.1450514	0.1528615	1166	0.0629206	0.0663085	467
31	0.9839243	0.9825208	224	0.1606601	0.1684466	1168	0.0696915	0.0730693	463
32	+0.9810448	+0.9794962	+246	+0.1762205	+0.1839812	-1170	+0.0764416	+0.0798083	-460
33	+0.9778754	+0.9761828	+269	+0.1917281	+0.1994608	-1172	+0.0831690	+0.0865236	-456

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X		Reduc. to Mean Eq'x of Jan. o.	Y		Reduc. to Mean Eq'x of Jan. o.	Z		Reduc. to Mean Eq'x of Jan. o.
	True Equinox.			True Equinox.			True Equinox.		
	Noon.	Midnight.		Noon.	Midnight.		Noon.	Midnight.	
Apr. 1	+0.9810448	+0.9794962	+ 246	+0.1762205	+0.1839812	- 1170	+0.0764416	+0.0798083	- 460
2	0.9778754	0.9761828	269	0.1917281	0.1994608	1172	0.0831690	0.0865236	456
3	0.9744184	0.9725823	291	0.2071788	0.2148816	1174	0.0898718	0.0932135	452
4	0.9706747	0.9686957	314	0.2225686	0.2302392	1175	0.0965483	0.0998760	448
5	0.9666456	0.9645245	337	0.2378929	0.2455292	1176	0.1031964	0.1065093	444
6	+0.9623325	+0.9600698	+ 360	+0.2531476	+0.2607477	- 1176	+0.1098144	+0.1131116	- 440
7	0.9577365	0.9553330	383	0.2683288	0.2758903	1176	0.1164005	0.1196809	436
8	0.9528593	0.9503156	406	0.2834317	0.2909527	1176	0.1229526	0.1262155	431
9	0.9477021	0.9450190	429	0.2984526	0.3059310	1176	0.1294692	0.1327135	427
10	0.9422665	0.9394449	452	0.3133872	0.3208207	1175	0.1359482	0.1391731	422
11	+0.9365540	+0.9335944	+ 475	+0.3282310	+0.3356176	- 1174	+0.1423879	+0.1455922	- 417
12	0.9305661	0.9274694	498	0.3429800	0.3503176	1172	0.1487860	0.1519690	412
13	0.9243045	0.9210715	521	0.3576298	0.3649161	1170	0.1551411	0.1583019	407
14	0.9177706	0.9144020	544	0.3721760	0.3794089	1168	0.1614512	0.1645887	401
15	0.9109662	0.9074636	567	0.3866142	0.3937914	1165	0.1677142	0.1708274	395
16	+0.9038942	+0.9002581	+ 591	+0.4009400	+0.4080593	- 1162	+0.1739281	+0.1770162	- 389
17	0.8965558	0.8927875	614	0.4151488	0.4222080	1159	0.1800913	0.1831532	383
18	0.8889536	0.8850543	637	0.4292362	0.4362330	1155	0.1862017	0.1892365	377
19	0.8810901	0.8770613	660	0.4431977	0.4501298	1151	0.1922573	0.1952640	371
20	0.8729682	0.8688112	683	0.4570289	0.4638943	1146	0.1982563	0.2012340	364
21	+0.8645908	+0.8603076	+ 706	+0.4707256	+0.4775221	- 1141	+0.2041970	+0.2071449	- 357
22	0.8559609	0.8515522	729	0.4842835	0.4910093	1136	0.2100776	0.2129948	350
23	0.8470816	0.8425496	752	0.4976991	0.5043524	1131	0.2158964	0.2187822	343
24	0.8379564	0.8333025	775	0.5109685	0.5175468	1125	0.2216519	0.2245052	336
25	0.8285883	0.8238139	798	0.5240871	0.5305895	1119	0.2273422	0.2301628	329
26	+0.8189800	+0.8140872	+ 821	+0.5370533	+0.5434777	- 1112	+0.2329666	+0.2357533	- 321
27	0.8091357	0.8041259	844	0.5498624	0.5562070	1105	0.2385228	0.2412751	313
28	0.7990581	0.7939329	867	0.5625111	0.5687744	1098	0.2440098	0.2467268	305
29	0.7887505	0.7835114	890	0.5749964	0.5811768	1091	0.2494259	0.2521071	297
30	0.7782160	0.7728648	912	0.5873152	0.5934110	1083	0.2547700	0.2574145	289
May 1	+0.7674581	+0.7619963	+ 935	+0.5994640	+0.6054738	- 1075	+0.2600404	+0.2626475	- 281
2	0.7564797	0.7509088	957	0.6114401	0.6173623	1066	0.2652358	0.2678051	273
3	0.7452841	0.7396060	980	0.6232402	0.6290733	1057	0.2703552	0.2728858	265
4	0.7338748	0.7280908	1002	0.6348613	0.6406038	1047	0.2753969	0.2778882	256
5	0.7222546	0.7163665	1025	0.6463005	0.6519508	1037	0.2803597	0.2828111	247
6	+0.7104270	+0.7044365	+ 1047	+0.6575545	+0.6631112	- 1027	+0.2852422	+0.2876529	- 238
7	0.6983954	0.6923040	1069	0.6686206	0.6740823	1017	0.2900430	0.2924124	229
8	0.6861628	0.6799722	1091	0.6794959	0.6848612	1006	0.2947609	0.2970884	220
9	0.6737327	0.6674446	1113	0.6901777	0.6954446	995	0.2993946	0.3016794	211
10	0.6611083	0.6547244	1135	0.7006618	0.7058292	983	0.3039427	0.3061843	201
11	+0.6482933	+0.6418153	+ 1157	+0.7109463	+0.7160128	- 971	+0.3084040	+0.3106016	- 192
12	0.6352909	0.6287205	1178	0.7210282	0.7259920	959	0.3127771	0.3149303	182
13	0.6221047	0.6154439	1200	0.7309039	0.7357637	946	0.3170609	0.3191686	172
14	0.6087386	0.6019893	1221	0.7405708	0.7453249	933	0.3212535	0.3233154	162
15	0.5951964	0.5883604	1242	0.7500256	0.7546725	920	0.3253542	0.3273696	152
16	+0.5814820	+0.5745616	+ 1263	+0.7592652	+0.7638035	- 906	+0.3293615	+0.3313298	- 142
17	+0.5675998	+0.5605971	+ 1284	+0.7682870	+0.7727153	- 892	+0.3332742	+0.3351947	- 132

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X		Reduc. to Mean Eq'x of Jan. o.	Y		Reduc. to Mean Eq'x of Jan. o.	Z		Reduc. to Mean Eq'x of Jan. o.
	True Equinox.	True Equinox.		True Equinox.	True Equinox.		True Equinox.	True Equinox.	
	Noon.	Midnight.	Noon.	Noon.	Midnight.	Noon.	Noon.	Midnight.	Noon.
May 17	+0.5675998	+0.5605971	+1284	+0.7682870	+0.7727153	-892	+0.3332742	+0.3351947	-132
18	0.5535540	0.5464712	1304	0.7770881	0.7814050	877	0.3370911	0.3389633	121
19	0.5393492	0.5321886	1325	0.7856657	0.7898699	862	0.3408111	0.3426344	111
20	0.5249900	0.5177539	1345	0.7940174	0.7981078	846	0.3444331	0.3462071	100
21	0.5104810	0.5031718	1365	0.8021408	0.8061163	830	0.3479563	0.3496805	90
22	+0.4958269	+0.4884469	+1384	+0.8100339	+0.8138935	-813	+0.3513796	+0.3530537	-79
23	0.4810323	0.4735837	1404	0.8176948	0.8214376	796	0.3547025	0.3563259	68
24	0.4661017	0.4585868	1423	0.8251216	0.8287464	779	0.3579238	0.3594963	57
25	0.4510397	0.4434608	1442	0.8323121	0.8358188	762	0.3610432	0.3625643	46
26	0.4358508	0.4282101	1461	0.8392661	0.8426534	744	0.3640596	0.3655290	35
27	+0.4205394	+0.4128392	+1480	+0.8459807	+0.8492479	-726	+0.3669725	+0.3683899	-24
28	0.4051100	0.3973523	1498	0.8524548	0.8556012	707	0.3697812	0.3711463	13
29	0.3895668	0.3817539	1516	0.8586870	0.8617118	688	0.3724851	0.3737975	-2
30	0.3739143	0.3660485	1534	0.8646756	0.8675785	668	0.3750834	0.3763429	+10
31	0.3581570	0.3502402	1551	0.8704200	0.8731999	648	0.3775759	0.3787821	21
June 1	+0.3422988	+0.3343334	+1568	+0.8759181	+0.8785746	-628	+0.3799615	+0.3811141	+33
2	0.3263445	0.3183325	1585	0.8811692	0.8837016	607	0.3822398	0.3833386	45
3	0.3102981	0.3022418	1601	0.8861718	0.8885795	586	0.3844104	0.3854551	57
4	0.2941640	0.2860653	1617	0.8909247	0.8932071	565	0.3864726	0.3874629	69
5	0.2779462	0.2698074	1633	0.8954267	0.8975832	543	0.3884259	0.3893614	81
6	+0.2616493	+0.2534724	+1648	+0.8996766	+0.9017067	-521	+0.3902695	+0.3911502	+93
7	0.2452774	0.2370648	1663	0.9036733	0.9055762	498	0.3920033	0.3928287	106
8	0.2288350	0.2205886	1678	0.9074153	0.9091905	475	0.3936263	0.3943963	118
9	0.2123263	0.2040484	1692	0.9109016	0.9125485	451	0.3951384	0.3958525	131
10	0.1957560	0.1874492	1706	0.9141310	0.9156489	427	0.3965387	0.3971969	144
11	+0.1791287	+0.1707950	+1719	+0.9171021	+0.9184905	-403	+0.3978270	+0.3984289	+156
12	0.1624488	0.1540907	1732	0.9198139	0.9210722	379	0.3990025	0.3995480	168
13	0.1457216	0.1373416	1745	0.9222652	0.9233929	354	0.4000651	0.4005538	180
14	0.1289517	0.1205525	1757	0.9244552	0.9254518	329	0.4010142	0.4014461	192
15	0.1121445	0.1037284	1769	0.9263827	0.9272479	303	0.4018496	0.4022245	204
16	+0.0953049	+0.0868746	+1780	+0.9280474	+0.9287810	-277	+0.4025709	+0.4028888	+216
17	0.0784382	0.0699963	1791	0.9294486	0.9300503	251	0.4031781	0.4034388	229
18	0.0615496	0.0530987	1802	0.9305860	0.9310557	224	0.4036709	0.4038745	241
19	0.0446443	0.0361870	1812	0.9314594	0.9317972	197	0.4040495	0.4041958	254
20	0.0277274	0.0192661	1822	0.9320690	0.9322747	170	0.4043136	0.4044028	266
21	+0.0108039	+0.0023416	+1831	+0.9324145	+0.9324886	-142	+0.4044634	+0.4044956	+279
22	-0.0061206	-0.0145824	1840	0.9324969	0.9324393	114	0.4044993	0.4044744	291
23	0.0230429	0.0315011	1848	0.9323159	0.9321269	86	0.4044210	0.4043392	304
24	0.0399567	0.0484090	1855	0.9318722	0.9315520	58	0.4042289	0.4040903	316
25	0.0568579	0.0653021	1862	0.9311663	0.9307151	-29	0.4039232	0.4037276	329
26	-0.0737415	-0.0821754	+1868	+0.9301985	+0.9296164	00	+0.4035038	+0.4032516	+342
27	0.0906032	0.0990244	1874	0.9289691	0.9282568	+29	0.4029712	0.4026626	354
28	0.1074384	0.1158446	1879	0.9274794	0.9266370	58	0.4023257	0.4019605	367
29	0.1242424	0.1326314	1883	0.9257296	0.9247573	88	0.4015672	0.4011458	379
30	0.1410109	0.1493805	1887	0.9237203	0.9226186	118	0.4006962	0.4002186	392
31	-0.1577395	-0.1660874	+1890	+0.9214524	+0.9202216	+148	+0.3997129	+0.3991793	+404
32	-0.1744236	-0.1827478	+1892	+0.9189265	+0.9175671	+178	+0.3986177	+0.3980282	+416

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X		Reduc. to Mean Eq'x of Jan. o.	Y		Reduc. to Mean Eq'x of Jan. o.	Z		Reduc. to Mean Eq'x of Jan. o.
	True Equinox.			True Equinox.			True Equinox.		
	Noon.	Midnight.	Noon.	Noon.	Midnight.	Noon.	Noon.	Midnight.	Noon.
July 1	-0.1577395	-0.1660874	+ 1890	+0.9214524	+0.9202216	+ 148	+0.3997129	+0.3991793	+ 404
2	0.1744236	0.1827478	1892	0.9189265	0.9175671	178	0.3986177	0.3980282	416
3	0.1910593	0.1993575	1894	0.9161434	0.9146556	209	0.3974107	0.3967654	428
4	0.2076419	0.2159119	1895	0.9131037	0.9114878	240	0.3960923	0.3953914	441
5	0.2241671	0.2324067	1896	0.9098080	0.9080646	271	0.3946627	0.3939064	453
6	-0.2406306	-0.2488378	+ 1896	+0.9062574	+0.9043864	+ 302	+0.3931224	+0.3923106	+ 465
7	0.2570280	0.2652005	1896	0.9024519	0.9004539	333	0.3914711	0.3906042	477
8	0.2733548	0.2814902	1895	0.8983925	0.8962679	364	0.3897098	0.3887879	489
9	0.2896062	0.2977023	1894	0.8940801	0.8918292	396	0.3878385	0.3868616	501
10	0.3057778	0.3138321	1892	0.8895154	0.8871387	427	0.3858574	0.3848261	513
11	-0.3218647	-0.3298748	+ 1889	+0.8846992	+0.8821972	+ 459	+0.3837677	+0.3826821	+ 525
12	0.3378620	0.3458256	1885	0.8796327	0.8770059	491	0.3815693	0.3804295	537
13	0.3537651	0.3616797	1881	0.8743169	0.8715659	523	0.3792627	0.3780691	549
14	0.3695688	0.3774319	1876	0.8687532	0.8658788	555	0.3768487	0.3756016	561
15	0.3852683	0.3930775	1871	0.8629431	0.8599462	587	0.3743278	0.3730276	572
16	-0.4008589	-0.4086118	+ 1865	+0.8568883	+0.8537696	+ 619	+0.3717010	+0.3703481	+ 584
17	0.4163356	0.4240297	1858	0.8505905	0.8473512	651	0.3689690	0.3675638	595
18	0.4316936	0.4393268	1851	0.8440519	0.8406929	683	0.3661326	0.3646755	606
19	0.4469286	0.4544985	1843	0.8372744	0.8337968	716	0.3631927	0.3616844	617
20	0.4620360	0.4695406	1834	0.8302603	0.8266652	749	0.3601505	0.3585912	628
21	-0.4770117	-0.4844487	+ 1824	+0.8230118	+0.8193004	+ 781	+0.3570066	+0.3553969	+ 639
22	0.4918511	0.4992185	1814	0.8155312	0.8117046	813	0.3537622	0.3521025	650
23	0.5065504	0.5138462	1803	0.8078208	0.8038803	845	0.3504181	0.3487090	661
24	0.5211054	0.5283275	1791	0.7998832	0.7958298	877	0.3469755	0.3452176	672
25	0.5355121	0.5426586	1779	0.7917204	0.7875555	909	0.3434354	0.3416291	682
26	-0.5497666	-0.5568357	+ 1766	+0.7833352	+0.7790599	+ 941	+0.3397987	+0.3379444	+ 692
27	0.5638653	0.5708549	1753	0.7747298	0.7703453	972	0.3360663	0.3341647	702
28	0.5778041	0.5847124	1739	0.7659068	0.7614146	1003	0.3322397	0.3302913	712
29	0.5915795	0.5984048	1724	0.7568689	0.7522701	1034	0.3283197	0.3263250	722
30	0.6051879	0.6119284	1708	0.7476184	0.7429142	1065	0.3243073	0.3222667	732
31	-0.6186258	-0.6252797	+ 1692	+0.7381577	+0.7333494	+ 1096	+0.3202035	+0.3181178	+ 741
Aug. 1	0.6318897	0.6384552	1675	0.7284894	0.7235781	1127	0.3160096	0.3138791	750
2	0.6449759	0.6514514	1657	0.7186158	0.7136028	1157	0.3117264	0.3095517	759
3	0.6578811	0.6642646	1639	0.7085393	0.7034257	1188	0.3073552	0.3051369	768
4	0.6706015	0.6768913	1620	0.6982624	0.6930496	1218	0.3028970	0.3006354	777
5	-0.6831335	-0.6893277	+ 1600	+0.6877876	+0.6824766	+ 1248	+0.2983525	+0.2960484	+ 786
6	0.6954734	0.7015702	1580	0.6771171	0.6717094	1278	0.2937232	0.2913770	795
7	0.7076176	0.7136151	1559	0.6662537	0.6607505	1308	0.2890100	0.2866225	804
8	0.7195621	0.7254582	1538	0.6552000	0.6496027	1337	0.2842145	0.2817861	812
9	0.7313030	0.7370960	1516	0.6439589	0.6382689	1366	0.2793375	0.2768690	820
10	-0.7428367	-0.7485246	+ 1493	+0.6325332	+0.6267521	+ 1395	+0.2743807	+0.2718727	+ 828
11	0.7541593	0.7597402	1470	0.6209260	0.6150555	1423	0.2693452	0.2667984	836
12	0.7652670	0.7707391	1446	0.6091408	0.6031824	1451	0.2642326	0.2616478	844
13	0.7761562	0.7815178	1421	0.5971807	0.5911362	1479	0.2590443	0.2564223	851
14	0.7868235	0.7920728	1396	0.5850494	0.5789207	1506	0.2537820	0.2511235	858
15	-0.7972653	-0.8024006	+ 1370	+0.5727506	+0.5665394	+ 1533	+0.2484470	+0.2457528	+ 865
16	-0.8074783	-0.8124980	+ 1344	+0.5602877	+0.5539961	+ 1559	+0.2430411	+0.2403121	+ 872

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X		Reduc. to Mean Eq'x of Jan. o.	Y		Reduc. to Mean Eq'x of Jan. o.	Z		Reduc. to Mean Eq'x of Jan. o.
	True Equinox.	True Equinox.		True Equinox.	True Equinox.		True Equinox.	True Equinox.	
	Noon.	Midnight.	Noon.	Noon.	Midnight.	Noon.	Noon.	Midnight.	Noon.
Aug. 16	-0.8074783	-0.8124980	+ 1344	+ 0.5602877	+ 0.5539961	+ 1559	+ 0.2430411	+ 0.2403121	+ 872
17	0.8174595	0.8223622	1317	0.5476650	0.5412948	1585	0.2375659	0.2348029	879
18	0.8272059	0.8319902	1289	0.5348859	0.5284389	1610	0.2320231	0.2292268	885
19	0.8367147	0.8413792	1261	0.5219543	0.5154326	1635	0.2264142	0.2235855	891
20	0.8459832	0.8505265	1232	0.5088743	0.5022798	1660	0.2207409	0.2178806	897
21	-0.8550087	-0.8594295	+ 1203	+ 0.4956497	+ 0.4889844	+ 1684	+ 0.2150048	+ 0.2121138	+ 903
22	0.8637887	0.8680858	1173	0.4822843	0.4755500	1707	0.2092078	0.2062869	908
23	0.8723207	0.8764930	1143	0.4687820	0.4619808	1730	0.2033513	0.2004013	913
24	0.8806024	0.8846486	1112	0.4551468	0.4482806	1753	0.1974371	0.1944589	918
25	0.8886315	0.8925508	1081	0.4413827	0.4344533	1775	0.1914669	0.1884613	923
26	-0.8964061	-0.9001972	+ 1049	+ 0.4274933	+ 0.4205030	+ 1797	+ 0.1854423	+ 0.1824101	+ 927
27	0.9039239	0.9075859	1017	0.4134830	0.4064340	1819	0.1793649	0.1763070	932
28	0.9111830	0.9147150	984	0.3993559	0.3922489	1840	0.1732364	0.1701536	936
29	0.9181816	0.9215826	951	0.3851137	0.3779515	1860	0.1670587	0.1639517	940
30	0.9249177	0.9281867	917	0.3707623	0.3635466	1880	0.1608330	0.1577027	943
31	-0.9313893	-0.9345253	+ 883	+ 0.3563048	+ 0.3490373	+ 1899	+ 0.1545610	+ 0.1514082	+ 947
Sept. 1	0.9375945	0.9405966	849	0.3417446	0.3344273	1918	0.1482445	0.1450700	950
2	0.9435313	0.9463984	814	0.3270857	0.3197203	1936	0.1418850	0.1386897	953
3	0.9491974	0.9519284	779	0.3123316	0.3049201	1954	0.1354842	0.1322688	956
4	0.9545911	0.9571849	744	0.2974863	0.2900308	1971	0.1290438	0.1258093	958
5	-0.9597099	-0.9621657	+ 708	+ 0.2825539	+ 0.2750561	+ 1988	+ 0.1225655	+ 0.1193128	+ 960
6	0.9645521	0.9668687	672	0.2675381	0.2600006	2004	0.1160513	0.1127813	962
7	0.9691154	0.9712919	635	0.2524434	0.2448676	2019	0.1095030	0.1062165	964
8	0.9733980	0.9754334	598	0.2372740	0.2296628	2034	0.1029222	0.0996204	965
9	0.9773980	0.9792915	561	0.2220345	0.2143897	2048	0.0963113	0.0929950	966
10	-0.9811137	-0.9828645	+ 523	+ 0.2067291	+ 0.1990533	+ 2062	+ 0.0896719	+ 0.0863423	+ 967
11	0.9845436	0.9861509	485	0.1913628	0.1836583	2075	0.0830064	0.0796645	967
12	0.9876862	0.9891494	447	0.1759402	0.1682093	2087	0.0763166	0.0729632	967
13	0.9905403	0.9918588	408	0.1604661	0.1527112	2099	0.0696045	0.0662407	967
14	0.9931049	0.9942783	369	0.1449452	0.1371687	2110	0.0628722	0.0594992	967
15	-0.9953790	-0.9964069	+ 330	+ 0.1293823	+ 0.1215866	+ 2121	+ 0.0561219	+ 0.0527405	+ 966
16	0.9973618	0.9982437	291	0.1137823	0.1059698	2131	0.0493554	0.0459668	965
17	0.9990526	0.9997883	251	0.0981499	0.0903230	2140	0.0425749	0.0391800	964
18	1.0004509	1.0010403	211	0.0824897	0.0746508	2149	0.0357823	0.0323822	963
19	1.0015564	1.0019991	171	0.0668067	0.0589580	2157	0.0289798	0.0255754	961
20	-1.0023685	-1.0026647	+ 131	+ 0.0511054	+ 0.0432494	+ 2164	+ 0.0221693	+ 0.0187618	+ 959
21	1.0028875	1.0030369	91	0.0353905	0.0275294	2171	0.0153530	0.0119431	956
22	1.0031129	1.0031155	51	0.0196667	+ 0.0118028	2175	0.0085325	+ 0.0051214	954
23	1.0030447	1.0029007	+ 10	+ 0.0039385	-0.0039252	2181	+ 0.0017101	-0.0017010	951
24	1.0026833	1.0023926	- 31	-0.0117882	0.0196505	2187	-0.0051119	0.0085224	948
25	-1.0020286	-1.0015914	- 72	-0.0275114	-0.0353704	+ 2192	-0.0119324	-0.0153416	+ 944
26	1.0010810	1.0004975	113	0.0432266	0.0510790	2196	0.0187497	0.0221562	940
27	0.9998408	0.9991110	154	0.0589274	0.0667715	2199	0.0255609	0.0289638	936
28	0.9983082	0.9974323	195	0.0746106	0.0824443	2201	0.0323646	0.0357631	932
29	0.9964834	0.9954615	236	0.0902721	0.0980934	2203	0.0391591	0.0425522	927
30	-0.9943666	-0.9931987	- 277	-0.1059076	-0.1137142	+ 2204	-0.0459422	-0.0493290	+ 922
31	-0.9919579	-0.9906442	- 319	-0.1215128	-0.1293028	+ 2204	-0.0527122	-0.0560917	+ 917

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	Midnight.		Noon.	Midnight.		Noon.	Midnight.	
Oct. 1	-0.9919579	-0.9906442	- 319	-0.1215128	-0.1293028	+ 2204	-0.0527122	-0.0560917	+ 917
2	0.9892575	0.9877980	360	0.1370836	0.1448547	2204	0.0594673	0.0628386	911
3	0.9862655	0.9846601	402	0.1526154	0.1603653	2203	0.0662054	0.0695674	905
4	0.9822819	0.9812310	443	0.1681037	0.1758301	2201	0.0729245	0.0762764	899
5	0.9794073	0.9775110	485	0.1835439	0.1912445	2199	0.0796227	0.0829633	893
6	-0.9755420	-0.9735006	- 527	-0.1989312	-0.2066036	+ 2196	-0.0862978	-0.0896260	+ 886
7	0.9713866	0.9692000	568	0.2142609	0.2219026	2193	0.0929476	0.0962624	879
8	0.9669413	0.9646108	610	0.2295280	0.2371367	2189	0.0995702	0.1028706	872
9	0.9622083	0.9597337	651	0.2447280	0.2523011	2184	0.1061634	0.1094484	864
10	0.9571874	0.9545695	693	0.2598556	0.2673908	2179	0.1127252	0.1159937	856
11	-0.9518802	-0.9491197	- 734	-0.2749062	-0.2824010	+ 2173	-0.1192535	-0.1225043	+ 848
12	0.9462882	0.9433857	775	0.2898747	0.2973267	2166	0.1257459	0.1289781	840
13	0.9404126	0.9373690	816	0.3047564	0.3121632	2159	0.1322007	0.1354134	831
14	0.9342551	0.9310713	857	0.3195466	0.3269059	2151	0.1386159	0.1418079	822
15	0.9278177	0.9244946	898	0.3342406	0.3415500	2142	0.1449892	0.1481595	812
16	-0.9211022	-0.9176408	- 939	-0.3488336	-0.3560907	+ 2133	-0.1513186	-0.1544662	+ 802
17	0.9141106	0.9105120	980	0.3633209	0.3705236	2123	0.1576023	0.1607264	792
18	0.9068451	0.9031103	1021	0.3776982	0.3848442	2112	0.1638384	0.1669380	782
19	0.8993079	0.8954382	1061	0.3919610	0.3990481	2101	0.1700250	0.1730991	772
20	0.8915014	0.8877498	1102	0.4061049	0.4131310	2089	0.1761601	0.1792078	762
21	-0.8834283	-0.8792921	-1142	-0.4201258	-0.4270885	+ 2077	-0.1822419	-0.1852622	+ 751
22	0.8750901	0.8708228	1182	0.4340188	0.4409163	2064	0.1882685	0.1912606	740
23	0.8664905	0.8620933	1222	0.4477804	0.4546107	2050	0.1942383	0.1972013	728
24	0.8576317	0.8531060	1262	0.4614066	0.4681677	2036	0.2001494	0.2030824	716
25	0.8485165	0.8438635	1301	0.4748934	0.4815833	2021	0.2060001	0.2089024	704
26	-0.8391473	-0.8343683	-1341	-0.4882370	-0.4948541	+ 2005	-0.2117890	-0.2146596	+ 692
27	0.8295268	0.8246233	1380	0.5014340	0.5079762	1989	0.2175142	0.2203526	679
28	0.8196578	0.8146304	1419	0.5144804	0.5209461	1972	0.2231745	0.2259794	666
29	0.8095418	0.8043924	1457	0.5273728	0.5337600	1955	0.2287673	0.2315382	653
30	0.7991824	0.7939120	1496	0.5401072	0.5464140	1937	0.2342919	0.2370280	640
31	-0.7885815	-0.7831914	-1534	-0.5526798	-0.5589042	+ 1918	-0.2397463	-0.2424465	+ 626
Nov. 1	0.7777419	0.7722333	1572	0.5650867	0.5712268	1899	0.2451285	0.2477921	612
2	0.7666661	0.7610405	1610	0.5773240	0.5833779	1879	0.2504370	0.2530631	598
3	0.7553570	0.7496159	1648	0.5893878	0.5953533	1858	0.2556702	0.2582579	584
4	0.7438175	0.7379623	1685	0.6012738	0.6071490	1837	0.2608260	0.2633744	569
5	-0.7320507	-0.7260831	-1722	-0.6129782	-0.6187610	+ 1815	-0.2659028	-0.2684111	+ 554
6	0.7200600	0.7139817	1759	0.6244969	0.6301853	1793	0.2708990	0.2733663	539
7	0.7078487	0.7016614	1795	0.6358257	0.6414178	1770	0.2758128	0.2782382	524
8	0.6954204	0.6891261	1831	0.6469611	0.6524550	1746	0.2806424	0.2830252	509
9	0.6827789	0.6763793	1866	0.6578991	0.6632929	1722	0.2853863	0.2877257	493
10	-0.6699279	-0.6634251	-1901	-0.6686360	-0.6739278	+ 1697	-0.2900430	-0.2923381	+ 477
11	0.6568714	0.6502673	1936	0.6791680	0.6843561	1671	0.2946108	0.2968609	461
12	0.6436134	0.6369102	1970	0.6894917	0.6945743	1645	0.2990883	0.3012927	445
13	0.6301582	0.6233579	2004	0.6996036	0.7045790	1618	0.3034739	0.3056318	428
14	0.6165099	0.6096148	2037	0.7095003	0.7143669	1591	0.3077662	0.3098770	411
15	-0.6026730	-0.5956851	-2070	-0.7191786	-0.7239349	+ 1563	-0.3119639	-0.3140269	+ 394
16	-0.5886517	-0.5815733	-2102	-0.7286355	-0.7332799	+ 1534	-0.3160657	-0.3180802	+ 377

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X		Reduc. to Mean Eq'x of Jan. 0.	Y		Reduc. to Mean Eq'x of Jan. 0.	Z		Reduc. to Mean Eq'x of Jan. 0.
	True Equinox.			True Equinox.			True Equinox.		
	Noon.	Midnight.		Noon.	Midnight.		Noon.	Midnight.	
Nov. 16	-0.5886517	-0.5815733	-2102	-0.7286355	-0.7332799	+1534	-0.3160657	-0.3180802	+377
17	0.5744507	0.5672845	2134	0.7378678	0.7423988	1505	0.3200702	0.3220355	360
18	0.5600750	0.5528225	2165	0.7468725	0.7512887	1475	0.3239761	0.3258919	342
19	0.5455278	0.5381917	2196	0.7556471	0.7599474	1445	0.3277824	0.3296479	324
20	0.5308149	0.5233976	2227	0.7641891	0.7683720	1414	0.3314880	0.3333026	306
21	-0.5159407	-0.5084445	-2257	-0.7724957	-0.7765601	+1383	-0.3350916	-0.3368549	+288
22	0.5009097	0.4933369	2286	0.7805649	0.7845098	1351	0.3385923	0.3403037	269
23	0.4857265	0.4780792	2315	0.7883944	0.7922186	1318	0.3419890	0.3436482	251
24	0.4703954	0.4626758	2344	0.7959820	0.7996844	1285	0.3452811	0.3468874	232
25	0.4549210	0.4471314	2372	0.8033256	0.8069054	1251	0.3484672	0.3500204	213
26	-0.4393075	-0.4314500	-2400	-0.8104234	-0.8138794	+1217	-0.3515467	-0.3530461	+194
27	0.4235594	0.4156361	2427	0.8172730	0.8206041	1182	0.3545184	0.3559635	175
28	0.4076808	0.3996939	2454	0.8238723	0.8270774	1146	0.3573814	0.3587719	156
29	0.3916761	0.3836279	2480	0.8302191	0.8332972	1110	0.3601348	0.3614699	137
30	0.3755499	0.3674426	2505	0.8363113	0.8392612	1074	0.3627773	0.3640570	118
Dec. 1	-0.3593066	-0.3511425	-2530	-0.8421466	-0.8449673	+1037	-0.3653087	-0.3665321	+98
2	0.3429510	0.3347326	2554	0.8477229	0.8504131	999	0.3677273	0.3688941	78
3	0.3264880	0.3182178	2577	0.8530377	0.8555964	961	0.3700324	0.3711420	59
4	0.3099225	0.3016029	2600	0.8580891	0.8605154	922	0.3722230	0.3732752	39
5	0.2932595	0.2848930	2622	0.8628751	0.8651680	883	0.3742985	0.3752928	+19
6	-0.2765042	-0.2680937	-2644	-0.8673939	-0.8695525	+843	-0.3762580	-0.3771940	-1
7	0.2596621	0.2512101	2665	0.8716437	0.8736671	803	0.3781007	0.3789781	21
8	0.2427384	0.2342476	2685	0.8756227	0.8775102	762	0.3798260	0.3806444	41
9	0.2257384	0.2172116	2704	0.8793293	0.8810802	721	0.3814331	0.3821922	61
10	0.2086678	0.2001076	2722	0.8827624	0.8843758	679	0.3829215	0.3836210	82
11	-0.1915319	-0.1829413	-2739	-0.8859203	-0.8873958	+636	-0.3842907	-0.3849305	-102
12	0.1743365	0.1657182	2756	0.8888021	0.8901392	593	0.3855404	0.3861201	123
13	0.1570871	0.1484439	2772	0.8914069	0.8926050	550	0.3866698	0.3871894	143
14	0.1397894	0.1311242	2787	0.8937335	0.8947923	506	0.3876788	0.3881380	164
15	0.1224490	0.1137647	2801	0.8957813	0.8967006	462	0.3885669	0.3889657	184
16	-0.1050718	-0.0963711	-2815	-0.8975500	-0.8983294	+417	-0.3893342	-0.3896724	-205
17	0.0876632	0.0789489	2828	0.8990389	0.8996783	372	0.3899802	0.3902578	225
18	0.0702288	0.0615037	2840	0.9002477	0.9007472	327	0.3905050	0.3907219	246
19	0.0527743	0.0440413	2851	0.9011767	0.9015362	282	0.3909085	0.3910647	266
20	0.0353053	0.0265668	2861	0.9018256	0.9020450	236	0.3911905	0.3912860	287
21	-0.0178267	-0.0090857	-2870	-0.9021945	-0.9022741	+190	-0.3913512	-0.3913861	-307
22	-0.0003443	+0.0083969	2879	0.9022839	0.9022238	143	0.3913906	0.3913648	328
23	+0.0171372	0.0258759	2887	0.9020939	0.9018942	96	0.3913088	0.3912225	348
24	0.0346125	0.0433462	2894	0.9016247	0.9012855	49	0.3911059	0.3909590	369
25	0.0520765	0.0608028	2900	0.9008766	0.9003980	+1	0.3907818	0.3905744	390
26	+0.0695245	+0.0782408	-2905	-0.8998498	-0.8992320	-47	-0.3903367	-0.3900689	-411
27	0.0869512	0.0956551	2909	0.8985446	0.8977877	95	0.3897708	0.3894425	432
28	0.1043519	0.1130409	2912	0.8969612	0.8960652	144	0.3890840	0.3886953	452
29	0.1217214	0.1303928	2914	0.8950998	0.8940649	192	0.3882764	0.3878274	473
30	0.1390545	0.1477057	2915	0.8929606	0.8917869	241	0.3873482	0.3868388	493
31	+0.1563458	+0.1649741	-2915	-0.8905438	-0.8892315	-290	-0.3862994	-0.3857299	-513
32	+0.1735900	+0.1821928	-2915	-0.8878499	-0.8863991	-339	-0.3851304	-0.3845008	-533

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	JANUARY.		Day of Month.	FEBRUARY.		Day of Month.	MARCH.	
	True Longitude.	Latitude.		True Longitude.	Latitude.		True Longitude.	Latitude.
	° ' "	° ' "		° ' "	° ' "		° ' "	° ' "
1.0	55 22 2.8	+0 32 18.8	1.0	106 12 23.8	-3 41 29.5	1.0	115 58 45.9	-4 21 14.6
1.5	62 24 4.0	-0 5 55.6	1.5	112 47 54.6	4 3 32.5	1.5	122 23 43.6	4 36 25.7
2.0	69 24 38.4	0 43 54.5	2.0	119 20 35.6	4 22 10.8	2.0	128 45 55.2	4 48 2.0
2.5	76 23 23.2	1 21 1.5	2.5	125 50 17.6	4 37 14.1	2.5	135 5 25.6	4 55 59.7
3.0	83 19 54.9	1 56 41.7	3.0	132 16 51.6	4 48 35.7	3.0	141 22 18.5	5 0 17.6
3.5	90 13 48.8	-2 30 22.8	3.5	138 40 10.2	-4 56 12.4	3.5	147 36 37.0	-5 0 57.1
4.0	97 4 40.7	3 1 35.6	4.0	145 0 8.0	5 0 4.3	4.0	153 48 23.5	4 58 1.9
4.5	103 52 7.5	3 29 55.4	4.5	151 16 42.2	5 0 14.5	4.5	159 57 40.9	4 51 38.2
5.0	110 35 48.1	3 55 1.3	5.0	157 29 53.3	4 56 48.8	5.0	166 4 32.8	4 41 54.2
5.5	117 15 24.3	4 16 37.1	5.5	163 39 45.4	4 49 55.2	5.5	172 9 4.2	4 28 59.9
6.0	123 50 42.0	-4 34 31.4	6.0	169 46 26.8	-4 39 43.6	6.0	178 11 21.9	-4 13 7.1
6.5	130 21 31.5	4 48 37.0	6.5	175 50 9.9	4 26 25.6	6.5	184 11 35.0	3 54 28.8
7.0	136 47 48.0	4 58 51.1	7.0	181 51 11.2	4 10 13.7	7.0	190 9 55.3	3 33 19.1
7.5	143 9 32.3	5 5 14.1	7.5	187 49 51.6	3 51 21.1	7.5	196 6 37.4	3 9 53.0
8.0	149 26 50.3	5 7 49.6	8.0	193 46 35.7	3 30 1.6	8.0	202 1 58.8	2 44 26.1
8.5	155 39 53.6	-5 6 43.9	8.5	199 41 52.4	-3 6 29.5	8.5	207 56 20.5	-2 17 14.5
9.0	161 48 58.8	5 2 4.4	9.0	205 36 13.0	2 40 59.2	9.0	213 50 6.5	1 48 34.7
9.5	167 54 27.0	4 54 1.2	9.5	211 30 12.5	2 13 45.3	9.5	219 43 44.2	1 18 43.0
10.0	173 56 43.7	4 42 44.7	10.0	217 24 28.4	1 45 2.8	10.0	225 37 43.6	0 47 56.4
10.5	179 55 18.4	4 28 26.0	10.5	223 19 40.1	1 15 6.8	10.5	231 32 37.6	-0 16 31.9
11.0	185 53 43.7	-4 11 16.9	11.0	229 16 28.6	-0 44 12.9	11.0	237 29 1.7	+0 15 13.1
11.5	191 49 34.9	3 51 29.4	11.5	235 15 35.7	-0 12 37.7	11.5	243 27 33.5	0 47 0.8
12.0	197 44 29.5	3 29 15.8	12.0	241 17 43.6	+0 19 21.8	12.0	249 28 51.9	1 18 32.9
12.5	203 39 6.4	3 4 48.7	12.5	247 23 34.4	0 51 26.9	12.5	255 33 37.1	1 49 30.1
13.0	209 34 5.7	2 38 21.0	13.0	253 33 48.0	1 23 17.8	13.0	261 42 29.4	2 19 32.5
13.5	215 30 7.8	-2 10 6.5	13.5	259 49 2.4	+1 54 33.3	13.5	267 56 8.5	+2 48 18.9
14.0	221 27 53.2	1 40 19.2	14.0	266 9 52.0	2 24 50.0	14.0	274 15 12.5	3 15 26.9
14.5	227 28 1.0	1 9 14.5	14.5	272 36 46.6	2 53 43.2	14.5	280 40 16.6	3 40 33.0
15.0	233 31 9.2	0 37 8.9	15.0	279 10 9.5	3 20 46.4	15.0	287 11 52.0	4 3 12.5
15.5	239 37 53.6	-0 4 20.3	15.5	285 50 16.5	3 45 31.7	15.5	293 50 23.9	4 23 0.0
16.0	245 48 47.1	+0 28 51.4	16.0	292 37 14.7	+4 7 30.5	16.0	300 36 10.4	+4 39 29.4
16.5	252 4 18.3	1 2 4.8	16.5	299 31 1.0	4 26 14.5	16.5	307 29 20.6	+5 52 15.3
17.0	258 24 51.5	1 34 56.3	17.0	306 31 21.4	4 41 16.0	17.0	314 29 52.7	5 0 53.6
17.5	264 50 45.3	2 7 0.3	17.5	313 37 50.4	4 52 9.9	17.5	321 37 33.2	5 5 2.5
18.0	271 22 11.8	2 37 49.5	18.0	320 49 51.6	4 58 34.6	18.0	328 51 56.2	5 4 24.4
18.5	277 59 16.1	+3 6 55.4	18.5	328 6 38.1	+5 0 13.6	18.5	336 12 22.8	+4 58 47.0
19.0	284 41 55.5	3 33 48.5	19.0	335 27 14.1	4 56 56.5	19.0	343 38 1.7	4 48 4.6
19.5	291 29 59.2	3 57 59.3	19.5	342 50 37.8	4 48 40.4	19.5	351 7 51.0	4 32 19.6
20.0	298 23 8.6	4 18 59.1	20.0	350 15 43.3	4 35 30.0	20.0	358 40 40.3	4 11 43.1
20.5	305 20 57.7	4 36 21.3	20.5	357 41 24.1	4 17 37.8	20.5	6 15 14.0	3 46 35.0
21.0	312 22 53.2	+4 49 42.2	21.0	5 6 35.9	+3 55 23.9	21.0	13 50 14.2	+3 17 23.4
21.5	319 28 16.6	4 58 42.1	21.5	12 30 19.0	3 29 15.1	21.5	21 24 24.4	2 44 43.6
22.0	326 36 25.3	5 3 6.5	22.0	19 51 41.4	2 59 43.0	22.0	28 56 32.6	2 9 16.7
22.5	333 46 34.5	5 2 46.3	22.5	27 9 59.5	2 27 23.2	22.5	36 25 34.7	1 31 47.2
23.0	340 57 59.2	4 57 39.1	23.0	34 24 39.0	1 52 53.7	23.0	43 50 36.0	0 53 1.1
23.5	348 9 55.9	+4 47 48.3	23.5	41 35 15.8	+1 16 53.5	23.5	51 10 52.5	+0 13 44.1
24.0	355 21 44.2	4 33 23.9	24.0	48 41 33.8	0 40 0.9	24.0	58 25 51.2	-0 25 20.4
24.5	2 32 48.5	4 14 40.9	24.5	55 43 25.8	+0 2 53.1	24.5	65 35 10.6	1 3 32.2
25.0	9 42 38.8	3 51 59.8	25.0	62 40 51.3	-0 33 54.6	25.0	72 38 38.9	1 40 15.3
25.5	16 50 50.6	3 25 45.5	25.5	69 33 55.1	1 9 49.7	25.5	79 36 13.3	2 14 58.5
26.0	23 57 5.8	+2 56 26.0	26.0	76 22 46.0	-1 44 22.3	26.0	86 27 58.5	-2 47 15.5
26.5	31 1 11.9	2 24 31.9	26.5	83 7 35.5	2 17 5.7	26.5	93 14 5.1	3 16 44.3
27.0	38 3 1.1	1 50 35.5	27.0	89 48 36.2	2 47 36.0	27.0	99 54 48.4	3 43 7.3
27.5	45 2 29.3	1 15 10.0	27.5	96 26 1.4	3 15 32.5	27.5	106 30 26.5	4 6 11.0
28.0	51 59 35.5	0 38 49.6	28.0	103 0 4.0	3 40 37.4	28.0	113 1 19.6	4 25 45.4
28.5	58 54 20.9	+0 2 8.0	28.5	109 30 55.5	-4 2 35.4	28.5	119 27 48.8	-4 41 43.2
29.0	65 46 46.8	-0 34 22.0	29.0	115 58 45.9	4 21 14.6	29.0	125 50 15.8	4 54 0.3
29.5	72 36 54.6	1 10 8.0	29.5	122 23 43.6	4 36 25.7	29.5	132 9 1.0	5 2 34.7
30.0	79 24 45.0	1 44 39.9	30.0	128 45 55.2	4 48 2.0	30.0	138 24 24.3	5 7 26.8
30.5	86 10 17.0	2 17 28.8	30.5	135 5 25.6	4 55 59.7	30.5	144 36 44.4	5 8 38.7
31.0	92 53 27.6	-2 48 8.7	31.0	141 22 18.5	-5 0 17.6	31.0	150 46 18.6	-5 6 14.6
31.5	99 34 12.1	-3 16 15.9	31.5	147 36 37.0	-5 0 57.1	31.5	156 53 22.7	-5 0 20.4

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	APRIL.		Day of Month.	MAY.		Day of Month.	JUNE.	
	True Longitude.	Latitude.		True Longitude.	Latitude.		True Longitude.	Latitude.
1.0	162 58 11.1	-4 51 3.5	1.0	195 51 53.4	-3 9 38.1	1.0	240 8 3.8	+0 41 30.5
1.5	169 0 57.3	4 38 33.0	1.5	201 46 20.1	2 42 29.5	1.5	246 9 26.3	1 14 14.2
2.0	175 1 53.7	4 22 59.6	2.0	207 40 31.0	2 13 36.8	2.0	252 13 5.3	1 46 18.6
2.5	181 1 12.6	4 4 35.0	2.5	213 34 43.5	1 43 17.0	2.5	258 19 13.9	2 17 21.7
3.0	186 59 5.6	3 43 32.6	3.0	219 29 14.5	1 11 48.2	3.0	264 28 3.7	2 47 1.5
3.5	192 55 44.6	-3 20 6.7	3.5	225 24 20.1	-0 39 28.9	3.5	270 39 44.8	+3 14 55.8
4.0	198 51 22.8	2 54 32.7	4.0	231 20 16.6	-0 6 38.7	4.0	276 54 26.3	3 40 43.1
4.5	204 46 13.6	2 27 6.8	4.5	237 17 20.4	+0 26 22.8	4.5	283 12 16.7	4 4 1.8
5.0	210 40 31.6	1 58 6.2	5.0	243 15 48.1	0 59 15.1	5.0	289 33 23.6	4 24 31.8
5.5	216 34 33.5	1 27 48.4	5.5	249 15 56.6	1 31 37.8	5.5	295 57 54.4	4 41 53.8
6.0	222 28 37.5	-0 56 31.5	6.0	255 18 3.8	+2 3 9.8	6.0	302 25 55.9	+4 55 50.1
6.5	228 23 3.6	-0 24 33.9	6.5	261 22 28.6	2 33 30.4	6.5	308 57 34.9	5 6 4.8
7.0	234 18 14.2	+0 7 45.8	7.0	267 29 30.5	3 2 18.6	7.0	315 32 58.0	5 12 23.8
7.5	240 14 33.8	0 40 8.7	7.5	273 39 30.1	3 29 13.8	7.5	322 12 11.0	5 14 35.7
8.0	246 12 28.8	1 12 15.5	8.0	279 52 48.5	3 53 55.4	8.0	328 55 19.4	5 12 31.7
8.5	252 12 28.0	+1 43 46.7	8.5	286 9 47.6	+4 16 3.2	8.5	335 42 27.6	+5 6 5.9
9.0	258 15 1.8	2 14 23.1	9.0	292 30 49.7	4 35 17.4	9.0	342 33 38.8	4 55 16.0
9.5	264 20 42.6	2 43 44.4	9.5	298 56 16.5	4 51 18.8	9.5	349 28 54.0	4 40 3.2
10.0	270 30 3.1	3 11 30.3	10.0	305 26 29.0	5 3 48.9	10.0	356 28 11.7	4 20 33.4
10.5	276 43 37.0	3 37 20.1	10.5	312 1 47.1	5 12 30.5	10.5	3 31 27.3	3 56 56.9
11.0	283 1 57.6	+4 0 52.4	11.0	318 42 27.9	+5 17 7.8	11.0	10 38 31.9	+3 29 29.1
11.5	289 25 37.2	4 21 45.5	11.5	325 28 45.2	5 17 26.7	11.5	17 49 12.1	2 58 30.7
12.0	295 55 6.0	4 39 37.5	12.0	332 20 48.6	5 13 15.9	12.0	25 3 9.1	2 24 27.7
12.5	302 30 50.7	4 54 6.3	12.5	339 18 42.6	5 4 27.5	12.5	32 19 58.4	1 47 51.4
13.0	309 13 13.4	5 4 50.6	13.0	346 22 24.6	4 50 57.6	13.0	39 39 9.0	1 9 17.8
13.5	316 2 29.9	+5 11 29.5	13.5	353 31 44.9	+4 32 47.2	13.5	47 0 4.7	+0 29 27.3
14.0	322 58 48.5	5 13 44.4	14.0	0 46 25.3	4 10 3.6	14.0	54 22 3.3	-0 10 56.9
14.5	330 2 8.0	5 11 19.3	14.5	8 5 58.7	3 43 0.5	14.5	61 44 18.2	0 51 9.7
15.0	337 12 17.1	5 4 2.5	15.0	15 29 49.0	3 11 58.8	15.0	69 5 59.1	1 30 26.2
15.5	344 28 53.0	4 51 47.5	15.5	22 57 11.5	2 37 26.7	15.5	76 26 13.9	2 8 2.8
16.0	351 51 21.0	+4 34 34.2	16.0	30 27 13.3	+1 59 59.4	16.0	83 44 10.3	-2 43 19.1
16.5	359 18 54.8	4 12 30.3	16.5	37 58 55.4	1 20 18.4	16.5	90 58 57.7	3 15 39.5
17.0	6 50 37.6	3 45 52.0	17.0	45 31 14.1	+0 39 9.8	17.0	98 9 49.2	3 44 33.8
17.5	14 25 23.4	3 15 4.1	17.5	53 3 3.2	-0 2 37.1	17.5	105 16 3.2	4 9 38.5
18.0	22 1 59.8	2 40 39.6	18.0	60 33 16.2	0 44 12.1	18.0	112 17 4.6	4 30 36.4
18.5	29 39 10.9	+2 3 18.9	18.5	68 0 49.3	-1 24 46.4	18.5	119 12 25.9	-4 47 17.3
19.0	37 15 39.8	1 23 47.8	19.0	75 24 43.3	2 3 34.4	19.0	126 1 48.5	4 59 36.5
19.5	44 50 12.8	0 42 55.6	19.5	82 44 5.2	2 39 55.1	19.5	132 45 2.0	5 7 34.9
20.0	52 21 41.3	+0 1 33.1	20.0	89 58 10.8	3 13 14.0	20.0	139 22 4.4	5 11 17.8
20.5	59 49 4.2	-0 39 30.2	20.5	97 6 24.9	3 43 3.2	20.5	145 53 1.7	5 10 54.0
21.0	67 11 30.4	-1 19 27.7	21.0	104 8 21.6	-4 9 2.0	21.0	152 18 7.1	-5 6 34.9
21.5	74 28 19.4	1 57 37.6	21.5	111 3 45.3	4 30 56.0	21.5	158 37 40.1	4 58 33.9
22.0	81 39 1.3	2 33 23.8	22.0	117 52 29.5	4 48 37.3	22.0	164 52 5.8	4 47 5.6
22.5	88 43 17.0	3 6 16.3	22.5	124 34 36.4	5 2 2.9	22.5	171 1 53.3	4 32 25.1
23.0	95 40 57.3	3 35 51.7	23.0	131 10 16.0	5 11 14.4	23.0	177 7 35.4	4 14 48.1
23.5	102 32 2.1	-4 1 52.2	23.5	137 39 44.5	-5 16 17.0	23.5	183 9 47.2	-3 54 30.4
24.0	109 16 39.0	4 24 5.5	24.0	144 3 23.9	5 17 18.3	24.0	189 9 5.7	3 31 47.7
24.5	115 55 1.8	4 42 24.3	24.5	150 21 40.8	5 14 28.1	24.5	195 6 8.8	3 6 55.5
25.0	122 27 29.3	4 56 45.0	25.0	156 35 3.9	5 7 57.4	25.0	201 1 35.0	2 40 9.4
25.5	128 54 24.3	5 7 7.4	25.5	162 44 5.6	4 57 58.2	25.5	206 56 1.9	2 11 45.4
26.0	135 16 12.2	-5 13 34.0	26.0	168 49 18.7	-4 44 43.3	26.0	212 50 7.0	-1 41 59.3
26.5	141 33 19.9	5 16 9.2	26.5	174 51 17.1	4 28 25.7	26.5	218 44 26.4	1 11 7.4
27.0	147 46 15.3	5 14 59.4	27.0	180 50 35.0	4 9 19.1	27.0	224 39 34.1	0 39 26.7
27.5	153 55 26.5	5 10 12.2	27.5	186 47 45.6	3 47 37.3	27.5	230 36 2.6	-0 7 14.8
28.0	160 1 21.3	5 1 56.4	28.0	192 43 21.5	3 23 34.6	28.0	236 34 21.3	+0 25 9.9
28.5	166 4 26.7	-4 50 22.0	28.5	198 37 54.3	-2 57 25.8	28.5	242 34 57.1	+0 57 28.0
29.0	172 5 8.6	4 35 39.6	29.0	204 31 53.4	2 29 26.2	29.0	248 38 13.9	1 29 19.3
29.5	178 3 51.7	4 18 1.0	29.5	210 25 47.3	1 59 51.6	29.5	254 44 31.9	2 0 22.5
30.0	184 0 59.2	3 57 38.7	30.0	216 20 1.9	1 28 58.8	30.0	260 54 8.0	2 30 15.8
30.5	189 56 52.9	3 34 46.3	30.5	222 15 1.7	0 57 5.4	30.5	267 7 15.1	2 58 36.5
31.0	195 51 53.4	-3 9 38.1	31.0	228 11 8.8	-0 24 29.7	31.0	273 24 2.4	+3 25 2.0
31.5	201 46 20.1	-2 42 29.5	31.5	234 8 43.4	+0 8 28.9	31.5	279 44 35.2	+3 49 9.7

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	JULY.		Day of Month.	AUGUST.		Day of Month.	SEPTEMBER.	
	True Longitude.	Latitude.		True Longitude.	Latitude.		True Longitude.	Latitude.
1.0	273 24 2.4	+ 3 25 2.0	1.0	321 56 28.2	+ 5 0 41.7	1.0	14 5 58.1	+ 2 40 12.9
1.5	279 44 35.2	3 49 9.7	1.5	328 51 3.8	4 56 40.7	1.5	21 22 11.3	2 6 9.8
2.0	286 8 55.2	4 10 37.3	2.0	335 48 35.9	4 48 14.1	2.0	28 37 27.5	1 30 5.6
2.5	292 37 0.8	4 29 3.5	2.5	342 48 33.9	4 35 25.2	2.5	35 51 13.2	0 52 39.3
3.0	299 8 47.2	4 44 9.0	3.0	349 50 26.7	4 18 21.9	3.0	43 3 0.9	+ 0 14 30.4
3.5	305 44 7.2	+ 4 55 36.2	3.5	356 53 44.8	+ 3 57 18.0	3.5	50 12 29.5	- 0 23 41.7
4.0	312 22 51.4	5 3 10.2	4.0	3 58 1.0	3 32 31.6	4.0	57 19 23.1	1 1 19.0
4.5	319 4 49.1	5 6 39.0	4.5	11 2 51.1	3 4 25.5	4.5	64 23 31.5	1 37 40.0
5.0	325 49 48.7	5 5 54.1	5.0	18 7 54.4	2 33 26.4	5.0	71 24 48.5	2 12 29.2
5.5	332 37 38.8	5 0 51.1	5.5	25 12 54.1	2 0 4.0	5.5	78 23 10.9	2 44 58.8
6.0	339 28 7.9	+ 4 51 28.9	6.0	32 17 36.7	+ 1 24 50.5	6.0	85 18 37.6	3 14 48.1
6.5	346 21 5.2	4 37 51.2	6.5	39 21 51.9	0 48 20.2	6.5	92 11 8.8	3 41 34.4
7.0	353 16 21.4	4 20 5.4	7.0	46 25 31.6	+ 0 11 7.7	7.0	99 0 45.2	4 4 58.3
7.5	0 13 47.5	3 58 23.7	7.5	53 28 29.3	- 0 26 11.2	7.5	105 47 27.3	4 24 44.1
8.0	7 13 15.9	3 33 1.9	8.0	60 30 39.1	1 3 1.2	8.0	112 31 14.7	4 40 40.1
8.5	14 14 39.1	+ 3 4 20.4	8.5	67 31 54.4	- 1 38 47.9	8.5	119 12 6.0	4 52 37.9
9.0	21 17 49.9	2 32 42.9	9.0	74 32 7.8	2 12 58.3	9.0	125 49 59.1	5 0 33.2
9.5	28 22 40.4	1 58 37.5	9.5	81 31 10.2	2 45 1.2	9.5	132 24 50.7	5 4 24.9
10.0	35 29 1.2	1 22 34.9	10.0	88 28 50.0	3 14 28.2	10.0	138 56 36.6	5 4 15.3
10.5	42 36 40.8	0 45 9.0	10.5	95 24 53.0	3 40 53.5	10.5	145 25 12.8	5 0 10.0
11.0	49 45 25.0	+ 0 6 56.2	11.0	102 19 2.8	- 4 3 55.5	11.0	151 50 35.2	- 4 52 17.7
11.5	56 54 56.2	- 0 31 25.7	11.5	109 11 1.0	4 23 16.2	11.5	158 12 40.8	4 40 49.7
12.0	64 4 52.6	1 9 17.9	12.0	116 0 27.3	4 38 42.1	12.0	164 31 27.5	4 25 59.4
12.5	71 14 48.5	1 46 1.8	12.5	122 47 1.1	4 50 4.1	12.5	170 46 55.5	4 8 2.6
13.0	78 24 14.5	2 21 0.2	13.0	129 30 21.9	4 57 17.6	13.0	176 59 7.2	3 47 16.6
13.5	85 32 37.9	- 2 53 37.8	13.5	136 10 10.5	- 5 0 22.7	13.5	183 8 7.7	- 3 23 59.5
14.0	92 39 22.5	3 23 22.8	14.0	142 46 10.0	4 59 23.5	14.0	189 14 5.2	2 58 30.5
14.5	99 43 51.9	3 49 47.8	14.5	149 18 6.9	4 54 27.6	14.5	195 17 11.5	2 31 9.6
15.0	106 45 29.5	4 12 30.3	15.0	155 45 51.4	4 45 46.4	15.0	201 17 41.5	2 2 16.6
15.5	113 43 39.6	4 31 13.2	15.5	162 9 18.5	4 33 33.7	15.5	207 15 53.4	1 32 10.9
16.0	120 37 49.6	- 4 45 45.2	16.0	168 28 28.2	- 4 18 5.1	16.0	213 12 9.0	- 1 1 12.0
16.5	127 27 31.3	4 56 0.6	16.5	174 43 25.5	3 59 38.1	16.5	219 6 53.4	- 0 29 38.8
17.0	134 12 21.9	5 1 58.9	17.0	180 54 21.3	3 38 31.5	17.0	225 0 34.7	+ 0 2 10.2
17.5	140 52 4.5	5 3 44.5	17.5	187 1 31.0	3 15 3.6	17.5	230 53 43.7	0 33 56.8
18.0	147 26 29.5	5 1 25.6	18.0	193 5 15.0	2 49 33.6	18.0	236 46 53.8	1 5 23.4
18.5	153 55 34.0	- 4 55 13.9	18.5	199 5 57.9	- 2 22 20.3	18.5	242 40 40.5	+ 1 36 12.5
19.0	160 19 22.6	4 45 23.3	19.0	205 4 8.4	1 53 42.2	19.0	248 35 41.5	2 6 7.1
19.5	166 38 5.9	4 32 9.5	19.5	211 0 18.9	1 23 57.4	19.5	254 32 35.2	2 34 49.7
20.0	172 52 1.2	4 15 49.5	20.0	216 55 4.5	0 53 23.6	20.0	260 32 1.2	3 2 2.9
20.5	179 1 31.2	3 56 40.6	20.5	222 49 2.6	- 0 22 18.1	20.5	266 34 39.2	3 27 28.9
21.0	185 7 3.2	- 3 35 0.6	21.0	228 42 52.7	+ 0 9 2.1	21.0	272 41 8.1	+ 3 50 40.6
21.5	191 9 8.9	3 11 7.1	21.5	234 37 15.4	0 40 19.9	21.5	278 52 6.3	4 11 46.2
22.0	197 8 22.8	2 45 17.2	22.0	240 32 52.1	1 11 18.1	22.0	285 8 9.0	4 29 59.8
22.5	203 5 22.1	2 17 47.9	22.5	246 30 24.3	1 41 39.4	22.5	291 29 48.6	4 45 10.8
23.0	209 0 46.3	1 48 56.1	23.0	252 30 32.7	2 11 6.0	23.0	297 57 33.1	4 56 59.8
23.5	214 55 15.2	- 1 18 58.3	23.5	258 33 56.9	+ 2 39 19.1	23.5	304 31 44.5	+ 5 5 8.0
24.0	220 49 29.6	0 48 11.0	24.0	264 41 14.3	3 5 59.5	24.0	311 12 38.3	5 9 17.4
24.5	226 44 10.6	- 0 16 50.9	24.5	270 52 59.3	3 30 47.1	24.5	318 0 21.4	5 9 11.9
25.0	232 39 57.9	+ 0 14 45.1	25.0	277 9 42.4	3 53 21.2	25.0	324 54 51.7	5 4 38.5
25.5	238 37 30.2	0 46 19.3	25.5	283 31 49.3	4 13 20.0	25.5	331 55 57.1	4 55 28.1
26.0	244 37 24.4	+ 1 17 33.5	26.0	289 59 39.8	+ 4 30 22.2	26.0	339 3 15.1	+ 4 41 36.7
26.5	250 40 14.7	1 48 8.6	26.5	296 33 26.6	4 44 6.6	26.5	346 16 12.7	4 23 6.2
27.0	256 46 32.4	2 17 44.7	27.0	303 13 15.1	4 54 12.4	27.0	353 34 7.6	4 0 6.1
27.5	262 56 44.7	2 46 0.8	27.5	309 59 2.0	5 0 21.2	27.5	0 56 8.7	3 32 52.8
28.0	269 11 14.4	3 12 35.3	28.0	316 50 35.4	5 2 17.0	28.0	8 21 18.1	3 1 51.1
28.5	275 30 19.3	+ 3 37 5.6	28.5	323 47 34.7	+ 4 59 47.2	28.5	15 48 34.2	+ 2 27 32.3
29.0	281 54 11.5	3 59 9.1	29.0	330 49 31.1	4 52 44.3	29.0	23 16 53.0	1 50 34.3
29.5	288 22 57.3	4 18 23.4	29.5	337 55 48.3	4 41 6.1	29.5	30 45 11.4	1 11 39.8
30.0	294 56 36.4	4 34 26.8	30.0	345 5 44.0	4 24 56.5	30.0	38 12 29.1	+ 0 31 34.3
30.5	301 35 2.2	4 46 58.9	30.5	352 18 31.7	4 4 26.1	30.5	45 37 50.8	- 0 8 55.3
31.0	308 18 2.4	+ 4 55 41.6	31.0	359 33 22.5	+ 3 39 52.3	31.0	53 0 28.5	- 0 49 3.0
31.5	315 5 18.8	+ 5 0 19.7	31.5	6 49 27.1	+ 3 11 38.2	31.5	60 19 41.3	- 1 28 5.0

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	OCTOBER.		Day of Month.	NOVEMBER.		Day of Month.	DECEMBER.	
	True Longitude.	Latitude.		True Longitude.	Latitude.		True Longitude.	Latitude.
1.0	53 0 28.5	-0 49 3.0	1.0	105 34 34.9	-4 41 5.0	1.0	141 46 6.7	-5 11 48.6
1.5	60 19 41.3	1 28 5.0	1.5	112 30 58.5	4 57 0.8	1.5	148 20 57.6	5 4 28.5
2.0	67 34 57.0	2 5 21.3	2.0	119 21 1.0	5 8 28.0	2.0	154 49 20.6	4 53 21.4
2.5	74 45 51.1	2 40 16.4	2.5	126 4 50.4	5 15 28.7	2.5	161 11 42.0	4 38 45.7
3.0	81 52 7.1	3 12 20.0	3.0	132 42 40.4	5 18 9.4	3.0	167 28 33.1	4 21 0.4
3.5	88 53 35.7	-3 41 7.3	3.5	139 14 49.1	-5 16 39.3	3.5	173 40 27.6	-4 0 24.7
4.0	95 50 13.2	4 6 18.4	4.0	145 41 38.1	5 11 9.8	4.0	179 48 0.7	3 37 17.6
4.5	102 42 1.5	4 27 38.7	4.5	152 3 31.2	5 1 54.0	4.5	185 51 48.6	3 11 57.7
5.0	109 29 5.7	4 44 57.9	5.0	158 20 53.6	4 49 5.9	5.0	191 52 26.9	2 44 43.5
5.5	116 11 34.6	4 58 10.3	5.5	164 34 11.1	4 33 1.0	5.5	197 50 30.8	2 15 53.4
6.0	122 49 38.7	-5 7 13.3	6.0	170 43 49.7	-4 13 55.4	6.0	203 46 34.2	-1 45 45.5
6.5	129 23 29.4	5 12 8.0	6.5	176 50 15.0	3 52 5.6	6.5	209 41 9.2	1 14 37.9
7.0	135 53 19.7	5 12 58.3	7.0	182 53 51.5	3 27 48.6	7.0	215 34 46.1	0 42 48.7
7.5	142 19 22.1	5 9 50.6	7.5	188 55 2.6	3 1 22.5	7.5	221 27 52.7	-0 10 36.6
8.0	148 41 49.0	5 2 53.5	8.0	194 54 10.5	2 33 5.2	8.0	227 20 54.7	+0 21 40.0
8.5	155 0 52.6	-4 52 17.9	8.5	200 51 36.3	-2 3 15.6	8.5	233 14 15.0	+0 53 42.2
9.0	161 16 44.3	4 38 16.3	9.0	206 47 39.7	1 32 12.5	9.0	239 8 14.9	1 25 11.1
9.5	167 29 35.4	4 21 2.9	9.5	212 42 39.0	1 0 15.2	9.5	245 3 13.0	1 55 47.7
10.0	173 39 36.5	4 0 53.5	10.0	218 36 52.0	-0 27 43.3	10.0	250 59 25.4	2 25 12.9
10.5	179 46 58.3	3 38 4.9	10.5	224 30 35.3	+0 5 3.5	10.5	256 57 6.8	2 53 7.8
11.0	185 51 50.9	-3 12 55.0	11.0	230 24 5.6	+0 37 45.4	11.0	262 56 30.0	+3 19 13.9
11.5	191 54 26.2	2 45 42.7	11.5	236 17 38.9	1 10 2.9	11.5	268 57 46.6	3 43 13.1
12.0	197 54 55.0	2 16 47.4	12.0	242 11 30.8	1 41 36.7	12.0	275 1 6.7	4 4 48.1
12.5	203 53 30.1	1 46 28.8	12.5	248 5 58.3	2 12 7.3	12.5	281 6 40.3	4 23 42.6
13.0	209 50 25.4	1 15 6.9	13.0	254 1 17.8	2 41 16.3	13.0	287 14 36.6	4 39 41.4
13.5	215 45 55.9	-0 43 1.7	13.5	259 57 47.2	+3 8 45.7	13.5	293 25 4.8	+4 52 30.5
14.0	221 40 18.6	-0 10 33.1	14.0	265 55 45.2	3 34 17.8	14.0	299 38 15.0	5 1 57.7
14.5	227 33 52.2	+0 21 59.4	14.5	271 55 31.5	3 57 35.9	14.5	305 54 17.6	5 7 52.3
15.0	233 26 57.3	0 54 16.6	15.0	277 57 27.2	4 18 23.6	15.0	312 13 24.0	5 10 5.3
15.5	239 19 56.8	1 25 59.8	15.5	284 1 54.6	4 36 25.8	15.5	318 35 46.7	5 8 29.9
16.0	245 13 15.3	+1 56 50.7	16.0	290 9 17.2	+4 51 27.6	16.0	325 1 39.3	+5 3 1.4
16.5	251 7 20.0	2 26 31.4	16.5	296 20 0.0	5 3 15.4	16.5	331 31 16.4	4 53 37.1
17.0	257 2 39.7	2 54 44.6	17.0	302 34 28.6	5 11 36.1	17.0	338 4 52.9	4 40 17.0
17.5	262 59 45.1	3 21 13.2	17.5	308 53 8.9	5 16 17.8	17.5	344 42 44.0	4 23 4.1
18.0	268 59 8.5	3 45 40.2	18.0	315 16 26.8	5 17 9.7	18.0	351 25 5.4	4 2 4.2
18.5	275 1 23.6	+4 7 49.1	18.5	321 44 47.6	+5 14 2.5	18.5	358 12 10.5	+3 37 26.5
19.0	281 7 4.8	4 27 23.1	19.0	328 18 35.1	5 6 48.6	19.0	5 4 10.5	3 9 23.9
19.5	287 16 46.6	4 44 5.7	19.5	334 58 10.4	4 55 22.8	19.5	12 1 14.1	2 38 13.9
20.0	293 31 3.3	4 57 49.5	20.0	341 43 51.3	4 39 42.6	20.0	19 3 24.9	2 4 18.0
20.5	299 50 28.1	5 7 51.3	20.5	348 35 51.2	4 19 49.4	20.5	26 10 41.5	1 28 3.2
21.0	306 15 31.9	+5 14 22.2	21.0	355 34 16.7	+3 55 48.7	21.0	33 22 54.9	+0 50 0.5
21.5	312 46 42.3	5 16 58.2	21.5	2 39 7.8	3 27 51.3	21.5	40 39 47.6	+0 10 46.4
22.0	319 24 23.0	5 15 26.0	22.0	9 50 15.7	2 56 14.2	22.0	48 0 53.6	-0 28 59.3
22.5	326 8 51.5	5 9 33.8	22.5	17 7 21.9	2 21 20.3	22.5	55 25 37.2	1 8 32.6
23.0	333 0 18.6	4 59 12.5	23.0	24 29 58.0	1 43 40.0	23.0	62 53 13.2	1 47 8.1
23.5	339 58 46.6	+4 44 17.6	23.5	31 57 24.7	+1 3 50.0	23.5	70 22 46.8	-2 23 59.9
24.0	347 4 8.5	4 24 48.9	24.0	39 28 51.9	+0 22 33.2	24.0	77 53 16.5	2 58 23.6
24.5	354 16 6.6	4 0 52.5	24.5	47 3 20.9	-0 19 22.9	24.5	85 23 35.7	3 29 38.3
25.0	1 34 12.8	3 32 41.4	25.0	54 39 44.8	1 1 7.4	25.0	92 52 34.8	3 57 8.3
25.5	8 57 47.7	3 0 36.2	25.5	62 16 50.8	1 41 48.5	25.5	100 19 3.4	4 20 24.9
26.0	16 26 1.5	+2 25 5.4	26.0	69 53 23.5	-2 20 36.1	26.0	107 41 55.0	-4 39 6.9
26.5	23 57 55.8	1 46 45.1	26.5	77 28 7.4	2 56 43.6	26.5	115 0 9.2	4 53 1.1
27.0	31 32 24.6	1 6 17.7	27.0	84 59 50.0	3 29 30.1	27.0	122 12 53.8	5 2 2.8
27.5	39 8 17.3	+0 24 31.4	27.5	92 27 24.8	3 58 22.1	27.5	129 19 27.0	5 6 14.4
28.0	46 44 20.8	-0 17 43.0	28.0	99 49 53.5	4 22 54.2	28.0	136 19 17.9	5 5 44.8
28.5	54 19 22.4	-0 59 33.5	28.5	107 6 28.1	-4 42 49.5	28.5	143 12 7.7	-5 0 48.2
29.0	61 52 13.4	1 40 9.6	29.0	114 16 32.0	4 57 58.8	29.0	149 57 48.6	4 51 41.9
29.5	69 21 50.5	2 18 44.4	29.5	121 19 39.9	5 8 20.5	29.5	156 36 23.9	4 38 46.9
30.0	76 47 18.0	2 54 36.5	30.0	128 15 38.6	5 13 59.1	30.0	163 8 6.0	4 22 24.9
30.5	84 7 49.5	3 27 10.8	30.5	135 4 25.5	5 15 4.1	30.5	169 33 15.7	4 2 58.6
31.0	91 22 48.6	-3 55 59.5	31.0	141 46 6.7	-5 11 48.6	31.0	175 52 20.5	-3 40 50.5
31.5	98 31 49.1	-4 20 42.1	31.5	148 20 57.6	-5 4 28.5	31.5	182 5 52.7	-3 16 22.6

GREENWICH MEAN NOON.

MOON'S EQUATOR.									
Date.	<i>i</i>	Δ	Ω'	Γ'	Ω	ζ			
	Inclination to the Earth's Equator.	Ascending Node on Earth's Equator to Ascending Node on Ecliptic.	Ascending Node on Earth's Equator.	Longitude of the Moon's Perigee. Daily Motion, + 6'.684.	Mean Longitude of Moon's Ascending Node. Daily Motion, - 3'.177	Moon's Mean Longitude.	Mean Solar Days.	Motion of Moon in Mean Longitude.	
Jan. 0	24 13.5	56 59.7	3 7.2	14 59.4	239 51.1	39 49.8	0.1	1 19.06	
10	24 14.2	56 28.9	3 6.0	16 6.2	239 19.4	171 35.7	0.2	2 38.12	
20	24 14.9	55 58.2	3 4.8	17 13.1	238 47.6	303 21.5	0.3	3 57.18	
30	24 15.6	55 27.5	3 3.7	18 19.9	238 15.8	75 7.3	0.4	5 16.23	
Feb. 9	24 16.2	54 56.8	3 2.6	19 26.8	237 44.1	206 53.2	0.5	6 35.29	
19	24 16.9	54 26.0	3 1.5	20 33.6	237 12.3	338 39.0	0.6	7 54.35	
Mar. 1	24 17.6	53 55.3	3 0.3	21 40.4	236 40.5	110 24.8	0.7	9 13.41	
11	24 18.3	53 24.6	2 59.1	22 47.3	236 8.7	242 10.7	0.8	10 32.47	
21	24 18.9	52 54.0	2 57.9	23 54.1	235 37.0	13 56.5	1.0	13 10.58	
31	24 19.6	52 23.3	2 56.7	25 1.0	235 5.2	145 42.4			
Apr. 10	24 20.2	51 52.6	2 55.6	26 7.8	234 33.4	277 28.2	2.0	26 21.17	
20	24 20.8	51 22.0	2 54.3	27 14.7	234 1.7	49 14.0	3.0	39 31.75	
30	24 21.4	50 51.4	2 53.0	28 21.5	233 29.9	180 59.9	4.0	52 42.33	
May 10	24 22.1	50 20.8	2 51.8	29 28.3	232 58.1	312 45.7	5.0	65 52.92	
20	24 22.7	49 50.2	2 50.5	30 35.2	232 26.3	84 31.5	6.0	79 3.50	
30	24 23.3	49 19.6	2 49.3	31 42.0	231 54.6	216 17.4	7.0	92 14.09	
June 9	24 23.9	48 49.0	2 48.0	32 48.9	231 22.8	348 3.2	8.0	105 24.67	
19	24 24.5	48 18.4	2 46.6	33 55.7	230 51.0	119 49.0	9.0	118 35.25	
29	24 25.2	47 47.8	2 45.3	35 2.5	230 19.2	251 34.9	10.0	131 45.84	
July 9	24 25.8	47 17.3	2 44.0	36 9.4	229 47.5	23 20.7			
19	24 26.4	46 46.8	2 42.7	37 16.2	229 15.7	155 6.6	Hours.	1	0 32.94
29	24 26.9	46 16.3	2 41.3	38 23.1	228 43.9	286 52.4	2	1 5.88	
Aug. 8	24 27.5	45 45.8	2 39.9	39 29.9	228 12.2	58 38.2	3	1 38.82	
18	24 28.1	45 15.3	2 38.5	40 36.8	227 40.4	190 24.1	4	2 11.76	
28	24 28.7	44 44.9	2 37.1	41 43.6	227 8.6	322 9.9	5	2 44.70	
Sept. 7	24 29.3	44 14.4	2 35.7	42 50.4	226 36.8	93 55.7	6	3 17.65	
17	24 29.8	43 43.9	2 34.3	43 57.3	226 5.1	225 41.6	7	3 50.59	
27	24 30.4	43 13.4	2 32.8	45 4.1	225 33.3	357 27.4	8	4 23.53	
Oct. 7	24 30.9	42 42.9	2 31.4	46 11.0	225 1.5	129 13.2	9	4 56.47	
17	24 31.5	42 12.5	2 30.0	47 17.8	224 29.7	260 59.1	10	5 29.41	
27	24 32.1	41 42.1	2 28.5	48 24.7	223 58.0	32 44.9	11	6 2.35	
Nov. 6	24 32.6	41 11.7	2 27.0	49 31.5	223 26.2	164 30.8	12	6 35.29	
16	24 33.1	40 41.3	2 25.5	50 38.3	222 54.4	296 16.6	13	7 8.23	
26	24 33.6	40 11.0	2 24.0	51 45.2	222 22.7	68 2.4	14	7 41.17	
Dec. 6	24 34.2	39 40.6	2 22.5	52 52.0	221 50.9	199 48.3	15	8 14.11	
16	24 34.7	39 10.2	2 20.9	53 58.9	221 19.1	331 34.1	16	8 47.06	
26	24 35.3	38 39.9	2 19.4	55 5.7	220 47.3	103 19.9	17	9 20.00	
36	24 35.8	38 9.5	2 17.9	56 12.6	220 15.6	235 5.8	18	9 52.94	
							19	10 25.88	
							20	10 58.82	
							21	11 31.76	
							22	12 4.70	
							23	12 37.64	

QUANTITIES REQUIRED IN COMPUTING THE
MOON'S LIBRATION.

ARGUMENT, $(\Omega - \lambda)$, or $(\Omega - \lambda - 180^\circ)$.

$\Omega - \lambda$	$\Delta \lambda$	$\frac{1}{a}$	B	$\Omega - \lambda$
0			0	0
0	0.0	39	0 0.0	180
2	0.0	39	0 3.1	178
4	0.1	39	0 6.2	176
6	0.2	39	0 9.3	174
8	0.2	39	0 12.4	172
10	0.2	39	0 15.4	170
12	0.3	40	0 18.5	168
14	0.3	40	0 21.5	166
16	0.3	40	0 24.5	164
18	0.3	41	0 27.4	162
20	0.4	41	0 30.4	160
22	0.4	42	0 33.2	158
24	0.4	42	0 36.1	156
26	0.5	43	0 38.9	154
28	0.5	44	0 41.7	152
30	0.5	45	0 44.4	150
32	0.5	46	0 47.0	148
34	0.5	47	0 49.7	146
36	0.5	48	0 52.2	144
38	0.6	49	0 54.7	142
40	0.6	50	0 57.1	140
42	0.6	52	0 59.4	138
44	0.6	54	1 1.7	136
46	0.6	56	1 3.9	134
48	0.6	58	1 6.0	132
50	0.6	60	1 8.0	130
52	0.6	63	1 10.0	128
54	0.5	66	1 11.8	126
56	0.5	69	1 13.6	124
58	0.5	73	1 15.3	122
60	0.5	77	1 16.9	120
62	0.5	83	1 18.4	118
64	0.5	89	1 19.8	116
66	0.4	95	1 21.1	114
68	0.4	103	1 22.3	112
70	0.4	113	1 23.4	110
72	0.4	125	1 24.4	108
74	0.3	141	1 25.3	106
76	0.3	160	1 26.1	104
78	0.2	186	1 26.8	102
80	0.2	222	1 27.4	100
82	0.2	278	1 27.9	98
84	0.1	370	1 28.3	96
86	0.1	555	1 28.6	94
88	0.0	1110	1 28.7	92
90	0.0	∞	1 28.8	90

$\Delta \lambda$ has the sign of $\tan (\lambda - \Omega)$

a has the sign of $\cos (\Omega - \lambda)$

B has the sign of $\sin (\Omega - \lambda)$

SUN'S ABERRATION AND HORIZONTAL PARALLAX.

FOR GREENWICH MEAN NOON.

Date.	Aberration. (<i>Struve.</i>)	Hor. Par.
1901.	"	"
Jan. 0	— 20.79	8.95
10	20.78	8.95
20	20.77	8.94
30	20.75	8.93
Feb. 9	20.71	8.92
19	— 20.67	8.90
March 1	20.62	8.88
11	20.56	8.85
21	20.50	8.83
31	20.44	8.81
April 10	— 20.38	8.78
20	20.33	8.75
30	20.28	8.73
May 10	20.24	8.71
20	20.19	8.69
30	— 20.16	8.68
June 9	20.13	8.67
19	20.11	8.66
29	20.10	8.65
July 9	20.10	8.66
19	— 20.11	8.66
29	20.13	8.67
Aug. 8	20.16	8.68
18	20.20	8.70
28	20.25	8.72
Sept. 7	— 20.30	8.74
17	20.35	8.76
27	20.41	8.78
Oct. 7	20.47	8.81
17	20.53	8.83
27	— 20.59	8.86
Nov. 6	20.64	8.88
16	20.68	8.90
26	20.72	8.92
Dec. 6	20.75	8.93
16	— 20.77	8.94
26	20.79	8.95
36	— 20.79	8.95

Sun's Mean Equatorial Horizontal
Parallax.

8''.80; log = 0.94448.

PRECESSION AND OBLIQUITY, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

FOR GREENWICH MEAN NOON.

Date.	In Longitude.		In R. A.	In Obli-	Obliquity. (Peters.)	Date.	In Longitude.		In R. A.	In Obli-	Obliquity. (Peters.)
	Precession from 1901.0.	Nutation.	Nutation.	Nutation.			Precession from 1901.0.	Nutation.	Nutation.	Nutation.	
	"	"	s	"	23° 27'		"	"	s	"	23° 26'
Jan. 0	- 0.08	+ 15.52	+ 0.949	- 5.11	2.18	July 4	25.38	+ 13.93	+ 0.852	- 6.40	60.65
5	+ 0.61	15.70	0.960	5.11	2.17	9	26.07	14.06	0.859	6.40	60.65
10	1.30	15.86	0.970	5.10	2.18	14	26.76	14.17	0.866	6.37	60.67
15	1.99	16.00	0.978	5.07	2.20	19	27.45	14.24	0.871	6.35	60.69
20	2.68	16.10	0.985	5.01	2.25	24	28.13	14.29	0.874	6.30	60.73
25	3.36	+ 16.17	+ 0.989	- 4.97	2.29	29	28.82	+ 14.31	+ 0.875	- 6.24	60.78
30	4.05	16.20	0.991	4.91	2.34	Aug. 3	29.51	14.30	0.874	6.19	60.83
Feb. 4	4.74	16.19	0.990	4.86	2.39	8	30.20	14.26	0.872	6.13	60.88
9	5.43	16.13	0.987	4.79	2.45	13	30.89	14.17	0.866	6.06	60.94
14	6.12	16.04	0.981	4.73	2.50	18	31.57	14.05	0.859	6.01	60.99
19	6.80	+ 15.91	+ 0.973	- 4.69	2.54	23	32.26	+ 13.90	+ 0.850	- 5.96	61.03
24	7.49	15.75	0.964	4.65	2.57	28	32.95	13.72	0.839	5.91	61.07
Mar. 1	8.18	15.55	0.951	4.61	2.60	Sept. 2	33.64	13.52	0.827	5.89	61.09
6	8.87	15.32	0.937	4.60	2.61	7	34.33	13.28	0.813	5.86	61.11
11	9.56	15.09	0.923	4.59	2.61	12	35.02	13.04	0.796	5.86	61.11
16	10.24	+ 14.83	+ 0.906	- 4.59	2.60	17	35.70	+ 12.77	+ 0.780	- 5.86	61.10
21	10.93	14.57	0.891	4.63	2.56	22	36.39	12.51	0.764	5.87	61.08
26	11.62	14.32	0.875	4.68	2.50	27	37.08	12.23	0.747	5.92	61.03
31	12.31	14.07	0.859	4.74	2.44	Oct. 2	37.77	11.96	0.731	5.97	60.97
Apr. 5	13.00	13.83	0.845	4.81	2.36	7	38.46	11.70	0.715	6.03	60.90
10	13.68	+ 13.59	+ 0.831	- 4.89	2.27	12	39.14	+ 11.45	+ 0.701	- 6.11	60.82
15	14.37	13.38	0.818	5.00	2.16	17	39.83	11.23	0.688	6.20	60.72
20	15.06	13.21	0.807	5.11	2.04	22	40.52	11.04	0.676	6.31	60.60
25	15.75	13.06	0.798	5.23	1.91	27	41.21	10.89	0.667	6.43	60.48
30	16.44	12.95	0.792	5.35	1.79	Nov. 1	41.90	10.77	0.659	6.55	60.35
May 5	17.13	+ 12.88	+ 0.787	- 5.48	1.65	6	42.58	+ 10.69	+ 0.654	- 6.68	60.22
10	17.81	12.83	0.785	5.60	1.52	11	43.27	10.64	0.651	6.81	60.08
15	18.50	12.82	0.785	5.73	1.39	16	43.96	10.63	0.652	6.93	59.95
20	19.19	12.85	0.786	5.85	1.26	21	44.65	10.68	0.654	7.05	59.83
25	19.88	12.91	0.789	5.96	1.15	26	45.34	10.75	0.657	7.16	59.71
30	20.57	+ 12.99	+ 0.794	- 6.07	1.03	Dec. 1	46.02	+ 10.85	+ 0.664	- 7.25	59.61
June 4	21.25	13.10	0.800	6.15	0.94	6	46.71	10.98	0.671	7.35	59.51
9	21.94	13.22	0.808	6.23	0.86	11	47.40	11.13	0.680	7.43	59.42
14	22.63	13.36	0.817	6.29	0.79	16	48.09	11.30	0.691	7.49	59.35
19	23.32	13.50	0.826	6.33	0.74	21	48.78	11.47	0.701	7.53	59.31
24	24.01	+ 13.65	+ 0.835	- 6.38	0.69	26	49.46	+ 11.65	+ 0.712	- 7.55	59.28
29	24.69	13.80	0.844	6.40	0.66	31	50.15	11.82	0.722	7.56	59.27
July 4	25.38	+ 13.93	+ 0.852	- 6.40	0.65	36	50.84	+ 11.99	+ 0.732	- 7.55	59.27

Mean Obliquity, 1901.0.

Precession for 1901 (*Struve*). 50.2640 log = 1.70126
Precession in a Solar day . . 0.1376 log = 9.13867
Precession in a Sidereal day. 0.1372 log = 9.13748

Peters 23 27 7.29
Hansen 23 27 7.55
Newcomb 23 27 7.79

FOR GREENWICH MEAN NOON.

Date.	$\delta\psi''$	$\delta\varepsilon''$	Date.	$\delta\psi''$	$\delta\varepsilon''$	Date.	$\delta\psi''$	$\delta\varepsilon''$	Date.	$\delta\psi''$	$\delta\varepsilon''$
	"	"		"	"		"	"		"	"
Jan. 0	-0.19	-0.01	Feb. 15	+0.03	-0.06	Apr. 2	+0.04	+0.07	May 18	-0.14	-0.05
1	0.15	0.05	16	0.09	-0.04	3	-0.05	0.07	19	-0.05	0.07
2	-0.08	0.08	17	0.13	0.00	4	0.12	0.05	20	+0.07	0.08
3	+0.02	0.09	18	0.14	+0.03	5	0.18	+0.02	21	0.17	0.08
4	0.13	0.07	19	0.11	0.06	6	0.20	0.00	22	0.25	-0.04
5	0.21	0.05	20	+0.04	0.08	7	0.20	-0.03	23	0.28	0.00
6	0.24	-0.01	21	-0.06	0.08	8	0.17	0.06	24	0.26	+0.03
7	0.25	+0.02	22	0.12	0.05	9	0.11	0.07	25	0.20	0.07
8	0.19	0.05	23	0.17	+0.02	10	-0.04	0.07	26	0.12	0.08
9	0.11	0.07	24	0.17	-0.02	11	+0.03	0.06	27	+0.03	0.08
10	+0.02	+0.08	25	-0.11	-0.06	12	+0.08	-0.03	28	-0.06	+0.06
11	-0.06	0.07	26	-0.03	0.08	13	0.11	0.00	29	0.11	0.04
12	0.12	0.05	27	+0.08	0.08	14	0.10	+0.04	30	0.16	+0.01
13	0.18	+0.02	28	0.17	0.07	15	+0.06	0.06	31	0.17	-0.02
14	0.21	-0.01	Mar. 1	0.23	-0.05	16	-0.02	0.08	June 1	0.16	0.04
15	0.18	0.04	2	0.25	0.00	17	0.10	0.08	2	0.12	0.07
16	0.14	0.06	3	0.24	+0.02	18	0.16	0.05	3	-0.06	0.07
17	0.08	0.08	4	0.18	0.06	19	0.18	+0.01	4	0.00	0.06
18	-0.02	0.08	5	+0.09	0.07	20	0.16	-0.03	5	+0.06	0.05
19	+0.07	0.06	6	0.00	0.07	21	0.10	0.07	6	0.11	-0.02
20	+0.13	-0.03	7	-0.08	+0.07	22	-0.01	-0.09	7	+0.11	+0.02
21	0.15	+0.01	8	0.15	0.05	23	+0.11	0.08	8	0.09	0.05
22	0.14	0.05	9	0.21	+0.01	24	0.21	0.06	9	+0.03	0.07
23	0.09	0.07	10	0.23	-0.01	25	0.26	-0.03	10	-0.07	0.08
24	+0.01	0.08	11	0.19	0.05	26	0.28	+0.02	11	0.12	0.07
25	-0.08	0.07	12	0.15	0.07	27	0.24	0.05	12	0.19	+0.04
26	0.14	+0.04	13	0.08	0.08	28	0.18	0.07	13	0.20	0.00
27	0.17	0.00	14	-0.01	0.07	29	+0.09	0.08	14	0.18	-0.04
28	0.15	-0.03	15	+0.06	0.05	30	0.00	0.09	15	-0.10	0.07
29	-0.10	0.07	16	0.11	-0.02	May 1	-0.08	0.06	16	+0.02	0.08
30	+0.01	-0.09	17	+0.13	+0.01	2	-0.14	+0.03	17	+0.12	-0.08
31	0.11	0.08	18	0.11	0.06	3	0.19	0.00	18	0.21	0.05
Feb. 1	0.20	0.06	19	+0.05	0.08	4	0.18	-0.03	19	0.25	-0.01
2	0.25	-0.03	20	-0.03	0.08	5	0.16	0.05	20	0.24	+0.03
3	0.24	+0.01	21	0.11	0.06	6	0.13	0.07	21	0.20	0.06
4	0.21	0.04	22	0.16	+0.03	7	-0.06	0.07	22	0.14	0.08
5	0.13	0.06	23	0.18	-0.01	8	+0.02	0.06	23	+0.05	0.08
6	+0.04	0.07	24	0.12	0.04	9	0.08	0.04	24	-0.03	0.07
7	-0.06	0.07	25	-0.04	0.07	10	0.11	-0.01	25	0.10	0.05
8	0.13	0.05	26	+0.05	0.08	11	0.10	+0.03	26	0.15	+0.02
9	-0.18	+0.03	27	+0.16	-0.08	12	+0.07	+0.06	27	0.17	-0.01
10	0.21	0.00	28	0.23	0.05	13	0.00	0.07	28	0.16	0.04
11	0.22	-0.02	29	0.27	-0.02	14	-0.08	0.08	29	0.12	0.07
12	0.19	0.05	30	0.25	+0.02	15	0.16	0.06	30	0.07	0.08
13	0.12	0.08	31	0.22	0.05	16	0.19	+0.02	July 1	-0.00	0.07
14	-0.05	0.07	Apr. 1	0.13	0.07	17	0.20	-0.01	2	+0.06	0.05
15	+0.03	-0.06	2	+0.04	+0.07	18	-0.14	-0.05	3	+0.11	0.03

FOR GREENWICH MEAN NOON.

Date.	$\delta\psi''$	$\delta\epsilon''$	Date.	$\delta\psi''$	$\delta\epsilon''$	Date.	$\delta\psi''$	$\delta\epsilon''$	Date.	$\delta\psi''$	$\delta\epsilon''$
	"	"		"	"		"	"		"	"
July 3	+ 0.11	- 0.03	Aug. 18	- 0.08	+ 0.06	Oct. 3	- 0.02	- 0.08	Nov. 18	+ 0.11	+ 0.02
4	0.14	0.00	19	0.15	+ 0.04	4	+ 0.09	0.08	19	0.09	0.05
5	0.12	+ 0.05	20	0.19	0.00	5	0.19	0.06	20	+ 0.02	0.06
6	+ 0.06	0.07	21	0.18	- 0.02	6	0.26	- 0.03	21	- 0.06	0.08
7	- 0.02	0.08	22	0.16	0.04	7	0.27	+ 0.01	22	0.15	0.07
8	0.11	0.07	23	0.12	0.06	8	0.24	0.04	23	0.19	+ 0.04
9	0.18	+ 0.05	24	- 0.06	0.07	9	0.17	0.07	24	0.22	0.00
10	0.21	0.00	25	0.00	0.06	10	+ 0.08	0.07	25	0.17	- 0.04
11	0.19	- 0.03	26	+ 0.07	0.05	11	- 0.01	0.07	26	- 0.09	0.08
12	0.13	0.06	27	0.11	- 0.02	12	0.09	0.05	27	+ 0.01	0.08
13	- 0.02	- 0.09	28	+ 0.13	+ 0.02	13	- 0.14	+ 0.03	28	+ 0.14	- 0.07
14	+ 0.09	0.08	29	0.10	0.04	14	0.17	0.00	29	0.22	- 0.04
15	0.17	0.06	30	+ 0.05	0.06	15	0.17	- 0.03	30	0.27	0.00
16	0.23	- 0.01	31	- 0.03	0.08	16	0.15	0.05	Dec. 1	0.26	+ 0.03
17	0.23	+ 0.02	Sept. 1	0.12	0.06	17	0.10	0.07	2	0.21	0.07
18	0.21	0.05	2	0.17	+ 0.03	18	- 0.04	0.07	3	0.13	0.08
19	0.15	0.07	3	0.18	0.00	19	+ 0.02	0.06	4	+ 0.04	0.08
20	+ 0.07	0.08	4	0.14	- 0.03	20	0.07	0.04	5	- 0.05	0.06
21	- 0.02	0.07	5	- 0.08	0.07	21	0.11	- 0.01	6	0.10	+ 0.04
22	0.09	0.05	6	+ 0.03	0.08	22	0.10	+ 0.03	7	0.16	0.00
23	- 0.15	+ 0.03	7	+ 0.13	- 0.08	23	+ 0.07	+ 0.06	8	- 0.14	- 0.02
24	0.16	+ 0.01	8	0.21	0.06	24	0.00	0.07	9	0.13	0.04
25	0.15	- 0.03	9	0.25	- 0.01	25	- 0.09	0.07	10	0.09	0.07
26	0.13	0.06	10	0.24	+ 0.02	26	0.15	0.06	11	- 0.03	0.07
27	0.08	0.07	11	0.21	0.05	27	0.21	+ 0.02	12	+ 0.01	0.06
28	- 0.02	0.08	12	0.12	0.08	28	0.19	- 0.01	13	0.07	0.05
29	+ 0.05	0.06	13	+ 0.03	0.08	29	0.14	0.05	14	0.09	- 0.02
30	0.10	0.04	14	- 0.04	0.06	30	- 0.05	0.08	15	0.11	+ 0.01
31	0.13	- 0.01	15	0.11	0.04	31	+ 0.07	0.08	16	0.09	0.04
Aug. 1	0.11	+ 0.03	16	0.15	+ 0.01	Nov. 1	0.16	0.07	17	+ 0.02	0.06
2	+ 0.08	+ 0.06	17	- 0.18	- 0.01	2	+ 0.24	- 0.04	18	- 0.06	+ 0.08
3	+ 0.01	0.08	18	0.16	0.04	3	0.27	0.00	19	0.13	0.07
4	- 0.08	0.08	19	0.13	0.06	4	0.26	+ 0.04	20	0.21	0.04
5	0.14	0.05	20	- 0.08	0.07	5	0.21	0.06	21	0.23	+ 0.01
6	0.19	+ 0.02	21	0.00	0.06	6	0.12	0.07	22	0.20	- 0.03
7	0.20	- 0.02	22	+ 0.05	0.05	7	+ 0.03	0.08	23	0.14	0.06
8	0.16	0.06	23	0.11	- 0.02	8	- 0.05	0.06	24	- 0.03	0.08
9	- 0.07	0.08	24	0.12	+ 0.01	9	0.11	0.04	25	+ 0.09	0.08
10	+ 0.04	0.08	25	0.12	0.04	10	0.15	+ 0.01	26	0.18	0.05
11	0.14	0.07	26	+ 0.05	0.07	11	0.16	- 0.02	27	0.23	- 0.02
12	+ 0.22	- 0.04	27	- 0.03	+ 0.08	12	- 0.15	- 0.04	28	+ 0.25	+ 0.02
13	0.25	+ 0.01	28	0.09	0.07	13	0.10	0.06	29	0.23	0.06
14	0.22	0.04	29	0.16	+ 0.04	14	0.06	0.07	30	0.16	0.08
15	0.17	0.06	30	0.19	0.00	15	- 0.01	0.06	31	+ 0.07	0.08
16	+ 0.09	0.07	Oct. -1	0.17	- 0.03	16	+ 0.05	0.05	32	- 0.01	0.07
17	- 0.01	0.08	2	0.13	0.06	17	0.09	- 0.03	33	0.08	0.04
18	- 0.08	+ 0.06	3	- 0.02	- 0.08	18	+ 0.11	+ 0.02	34	- 0.12	+ 0.01

PART II

ASTRONOMICAL EPHEMERIS

FOR THE

MERIDIAN OF WASHINGTON.

FORMULÆ FOR THE REDUCTION OF THE POSITIONS OF THE FIXED STARS, USING THE NOTATION OF BESSEL, AND THE CONSTANTS OF STRUVE AND PETERS.

NOTATION.

- τ , the time, reckoned in units of one year, from the beginning of the Besselian fictitious year, (1900, December 31.342^d = 1901, January 0.342^d, Washington mean time),
 a_0, δ_0 , the star's mean right ascension and declination at the beginning of the fictitious year,
 α, δ , the star's apparent right ascension and declination at the time τ ,
 μ, μ' , the annual proper motion in right ascension and declination,
 \odot , the sun's true longitude, Γ , the longitude of the sun's perigee,
 \oslash , the longitude of the moon's ascending node, Γ' , the longitude of the moon's perigee,
 ω , the obliquity of the ecliptic, \mathcal{Q} , the moon's mean longitude.

BESSELIAN STAR-NUMBERS.

$$\begin{aligned} A &= \tau - 0.34252 \sin \oslash \\ &\quad + 0.00410 \sin 2 \oslash \\ &\quad - 0.02519 \sin 2 \odot \\ &\quad + 0.00293 \sin (\odot + 81^\circ 56') \\ &\quad - 0.00405 \sin 2 \mathcal{Q} \\ &\quad + 0.00135 \sin (\mathcal{Q} - \Gamma') \\ A' &= \tau - 0.34252 \sin \oslash \\ &\quad + 0.00410 \sin 2 \oslash \\ &\quad - 0.02519 \sin 2 \odot \\ &\quad + 0.00293 \sin (\odot + 81^\circ 56') \\ B &= -9.2240 \cos \oslash \\ &\quad + 0.0895 \cos 2 \oslash \\ &\quad - 0.5506 \cos 2 \odot \\ &\quad - 0.0092 \cos (\odot + 281^\circ 14') \\ &\quad - 0.0885 \cos 2 \mathcal{Q} \\ B' &= -9.2240 \cos \oslash \\ &\quad + 0.0895 \cos 2 \oslash \\ &\quad - 0.5506 \cos 2 \odot \\ &\quad - 0.0092 \cos (\odot + 281^\circ 14') \\ C &= -20.4451 \cos \omega \cos \odot \\ D &= -20.4451 \sin \odot \\ E &= -0.0449 \sin \oslash + 0.0014'' \sin 2 \oslash - 0.0032'' \sin 2 \odot \end{aligned}$$

BESSEL'S Star-Constants.

$$\begin{aligned} a &= 3.07274'' + 1.33680'' \sin a_0 \tan \delta_0 = \text{precession in right ascension} \\ b &= \frac{1}{15} \cos a_0 \tan \delta_0 \\ c &= \frac{1}{15} \cos a_0 \sec \delta_0 \\ d &= \frac{1}{15} \sin a_0 \sec \delta_0 \\ a' &= 20.0520'' \cos a_0 = \text{precession in declination} \\ b' &= -\sin a_0 \\ c' &= \tan \omega \cos \delta_0 - \sin a_0 \sin \delta_0 \\ d' &= \cos a_0 \sin \delta_0 \end{aligned}$$

Reduction to Apparent Position.

$$\begin{aligned} a &= a_0 + \tau \mu + Aa + Bb + Cc + Dd + \frac{1}{15} E & (\text{in time}) \\ \delta &= \delta_0 + \tau \mu' + Aa' + Bb' + Cc' + Dd' & (\text{in arc}) \end{aligned}$$

INDEPENDENT STAR-NUMBERS.

$$\begin{aligned} f &= 46.0911'' A + E \text{ (in arc)} = 3.07274'' A + \frac{1}{15} E & (\text{in time}) \\ f' &= 46.0911'' A' + E \text{ (in arc)} = 3.07274'' A' + \frac{1}{15} E & (\text{in time}) \\ g \sin G &= B & g' \sin G' &= B' & h \sin H &= C \\ g \cos G &= 20.0520'' A & g' \cos G' &= 20.0520'' A' & h \cos H &= D & i &= C \tan \omega \end{aligned}$$

Reduction to Apparent Position.

$$\begin{aligned} a &= a_0 + f + \tau \mu + \frac{1}{15} g \sin (G + a_0) \tan \delta_0 + \frac{1}{15} h \sin (H + a_0) \sec \delta_0 & (\text{in time}) \\ \delta &= \delta_0 + \tau \mu' + g \cos (G + a_0) + h \cos (H + a_0) \sin \delta_0 + i \cos \delta_0 & (\text{in arc}) \end{aligned}$$

- NOTES.—(1) The quantities A' , B' , f' , g' , and G' are to be used instead of A , B , f , g , and G whenever it is necessary to omit the short period terms, as, for example, in computing the ephemeris of a star at ten-day intervals.
 (2) The independent star-numbers are more convenient, when only one or two apparent positions of a star are required, or when BESSEL'S star-constants are not known with sufficient accuracy. Otherwise, the Besselian star-numbers are more convenient.
 (3) In using the star-constants of the *British Association Catalogue*, $a, b, c, d, a', b', c', a'',$ with the star-numbers of this Ephemeris, the quantities to be formed are $Ac, Bd, Ca, Db, -Ac', -Bd', -Ca', -Db'$.

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Jan. 0	+9.4853	+0.7102	-0.5181	+1.3038	Feb. 15	+9.6491	+0.6788	-1.1960	+1.0483
1	9.4916	0.7134	0.5593	1.3023	16	9.6521	0.6745	1.2009	1.0364
2	9.4986	0.7157	0.5968	1.3007	17	9.6544	0.6698	1.2056	1.0240
3	9.5059	0.7165	0.6312	1.2990	18	9.6559	0.6655	1.2101	1.0111
4	9.5130	0.7157	0.6629	1.2971	19	9.6567	0.6623	1.2145	0.9976
^h (7.0) 5	+9.5194	+0.7135	-0.6923	+1.2951	^h (10.0) 20	+9.6573	+0.6607	-1.2186	+0.9836
6	9.5248	0.7102	0.7198	1.2929	21	9.6579	0.6609	1.2226	0.9690
7	9.5290	0.7065	0.7455	1.2906	22	9.6588	0.6627	1.2265	0.9538
8	9.5320	0.7030	0.7695	1.2881	23	9.6604	0.6655	1.2301	0.9378
9	9.5341	0.7005	0.7923	1.2855	24	9.6627	0.6686	1.2336	0.9212
10	+9.5356	+0.6994	-0.8137	+1.2827	25	+9.6657	+0.6711	-1.2369	+0.9037
11	9.5371	0.6999	0.8340	1.2798	26	9.6693	0.6726	1.2401	0.8854
12	9.5391	0.7016	0.8533	1.2767	27	9.6728	0.6726	1.2431	0.8661
13	9.5419	0.7043	0.8716	1.2734	28	9.6762	0.6706	1.2459	0.8458
14	9.5458	0.7071	0.8890	1.2700	Mar. 1	9.6791	0.6674	1.2486	0.8244
15	+9.5506	+0.7094	-0.9057	+1.2664	2	+9.6813	+0.6634	-1.2512	+0.8018
16	9.5562	0.7106	0.9215	1.2626	3	9.6826	0.6592	1.2536	0.7778
17	9.5620	0.7103	0.9367	1.2585	4	9.6831	0.6557	1.2559	0.7522
18	9.5677	0.7084	0.9513	1.2546	5	9.6831	0.6537	1.2580	0.7249
19	9.5729	0.7051	0.9652	1.2504	6	9.6828	0.6533	1.2599	0.6957
^h (8.0) 20	+9.5772	+0.7010	-0.9786	+1.2459	^h (11.0) 7	+9.6826	+0.6548	-1.2618	+0.6643
21	9.5806	0.6967	0.9914	1.2413	8	9.6829	0.6577	1.2634	0.6302
22	9.5831	0.6928	1.0037	1.2364	9	9.6839	0.6614	1.2650	0.5931
23	9.5849	0.6900	1.0156	1.2314	10	9.6856	0.6651	1.2664	0.5524
24	9.5865	0.6890	1.0270	1.2262	11	9.6880	0.6680	1.2677	0.5074
25	+9.5882	+0.6896	-1.0379	+1.2208	12	+9.6909	+0.6697	-1.2688	+0.4571
26	9.5904	0.6914	1.0485	1.2152	13	9.6939	0.6697	1.2698	0.4001
27	9.5935	0.6938	1.0587	1.2094	14	9.6968	0.6681	1.2707	0.3343
28	9.5974	0.6962	1.0685	1.2033	15	9.6992	0.6653	1.2714	0.2566
29	9.6019	0.6979	1.0780	1.1971	16	9.7010	0.6620	1.2720	0.1619
30	+9.6069	+0.6983	-1.0871	+1.1906	17	+9.7022	+0.6587	-1.2725	+0.0404
31	9.6119	0.6971	1.0959	1.1838	18	9.7029	0.6565	1.2728	9.8712
Feb. 1	9.6165	0.6944	1.1044	1.1769	19	9.7030	0.6558	1.2730	9.5897
2	9.6203	0.6904	1.1126	1.1697	20	9.7030	0.6569	1.2731	+8.5403
3	9.6233	0.6857	1.1205	1.1622	21	9.7034	0.6598	1.2731	-9.5045
^h (9.0) 4	+9.6252	+0.6812	-1.1282	+1.1544	^h (12.0) 22	+9.7044	+0.6638	-1.2729	-9.8281
5	9.6263	0.6775	1.1355	1.1464	23	9.7060	0.6684	1.2726	0.0114
6	9.6268	0.6751	1.1426	1.1381	24	9.7082	0.6727	1.2721	0.1397
7	9.6272	0.6744	1.1494	1.1295	25	9.7110	0.6761	1.2716	0.2384
8	9.6279	0.6753	1.1560	1.1206	26	9.7141	0.6780	1.2709	0.3186
9	+9.6291	+0.6774	-1.1624	+1.1114	27	+9.7171	+0.6783	-1.2700	-0.3863
10	9.6311	0.6800	1.1685	1.1018	28	9.7197	0.6771	1.2691	0.4446
11	9.6341	0.6823	1.1744	1.0919	29	9.7218	0.6749	1.2680	0.4959
12	9.6376	0.6837	1.1801	1.0816	30	9.7231	0.6724	1.2667	0.5416
13	9.6415	0.6836	1.1856	1.0709	31	9.7237	0.6703	1.2654	0.5828
14	+9.6455	+0.6819	-1.1909	+1.0598	Apr. 1	+9.7238	+0.6694	-1.2639	-0.6203
15	+9.6491	+0.6788	-1.1960	+1.0483	2	+9.7235	+0.6701	-1.2623	-0.6547

$$E = + 0''.04 = + 0''.003$$

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Apr. 1	+9.7238	+0.6694	-1.2639	-0.6203	May 17	+9.7973	+0.7649	-1.0144	1.2320
2	9.7235	0.6701	1.2623	0.6547	18	9.8002	0.7692	1.0031	1.2367
3	9.7233	0.6726	1.2605	0.6864	19	9.8034	0.7725	0.9914	1.2412
4	9.7234	0.6765	1.2586	0.7158	20	9.8067	0.7745	0.9793	1.2450
5	9.7241	0.6814	1.2566	0.7432	21	9.8099	0.7751	0.9667	1.2499
^h (13.0) 6	+9.7255	+0.6866	-1.2544	-0.7689	^h (16.0) 22	+9.8127	+0.7746	-0.9537	1.2539
7	9.7276	0.6912	1.2521	0.7930	23	9.8150	0.7734	0.9401	1.2578
8	9.7302	0.6947	1.2497	0.8157	24	9.8167	0.7721	0.9259	1.2616
9	9.7330	0.6967	1.2471	0.8371	25	9.8179	0.7713	0.9111	1.2652
10	9.7359	0.6971	1.2444	0.8574	26	9.8186	0.7714	0.8957	1.2686
11	+9.7384	+0.6963	-1.2415	-0.8766	27	+9.8193	+0.7729	-0.8796	1.2719
12	9.7404	0.6947	1.2385	0.8949	28	9.8201	0.7757	0.8628	1.2750
13	9.7418	0.6929	1.2353	0.9123	29	9.8212	0.7794	0.8451	1.2780
14	9.7426	0.6919	1.2320	0.9290	30	9.8228	0.7836	0.8266	1.2809
15	9.7431	0.6922	1.2285	0.9449	31	9.8249	0.7877	0.8072	1.2836
16	+9.7434	+0.6940	-1.2249	-0.9601	June 1	+9.8276	+0.7912	-0.7867	1.2861
17	9.7439	0.6975	1.2212	0.9746	2	9.8306	0.7936	0.7651	1.2886
18	9.7449	0.7021	1.2172	0.9885	3	9.8337	0.7946	0.7422	1.2909
19	9.7465	0.7074	1.2131	1.0019	4	9.8367	0.7944	0.7179	1.2930
20	9.7486	0.7127	1.2089	1.0148	5	9.8393	0.7933	0.6921	1.2951
^h (14.0) 21	+9.7513	+0.7173	-1.2045	-1.0271	^h (17.0) 6	+9.8415	+0.7915	-0.6645	1.2970
22	9.7545	0.7205	1.1999	1.0390	7	9.8433	0.7899	0.6349	1.2988
23	9.7576	0.7223	1.1951	1.0505	8	9.8445	0.7889	0.6031	1.3004
24	9.7606	0.7227	1.1902	1.0615	9	9.8457	0.7890	0.5686	1.3020
25	9.7630	0.7220	1.1850	1.0721	10	9.8467	0.7904	0.5310	1.3033
26	+9.7648	+0.7207	-1.1798	-1.0823	11	+9.8480	+0.7929	-0.4897	1.3046
27	9.7660	0.7196	1.1742	1.0922	12	9.8497	0.7962	0.4439	1.3058
28	9.7666	0.7193	1.1686	1.1017	13	9.8518	0.7998	0.3926	1.3068
29	9.7669	0.7203	1.1627	1.1109	14	9.8544	0.8032	0.3344	1.3077
30	9.7671	0.7228	1.1566	1.1198	15	9.8574	0.8057	0.2669	1.3085
May 1	+9.7675	+0.7267	-1.1502	-1.1284	16	+9.8606	+0.8070	-0.1868	1.3091
2	9.7684	0.7316	1.1437	1.1367	17	9.8639	0.8070	0.0887	1.3097
3	9.7699	0.7369	1.1370	1.1447	18	9.8667	0.8059	0.9610	1.3101
4	9.7720	0.7419	1.1300	1.1524	19	9.8691	0.8040	0.7797	1.3104
5	9.7747	0.7459	1.1228	1.1599	20	9.8709	0.8018	-0.9419	1.3105
^h (15.0) 6	+9.7777	+0.7487	-1.1153	-1.1671	^h (18.0) 21	+9.8723	+0.7998	+0.8354	1.3106
7	9.7808	0.7500	1.1076	1.1741	22	9.8733	0.7986	0.5247	1.3105
8	9.7836	0.7500	1.0997	1.1808	23	9.8740	0.7986	0.8108	1.3103
9	9.7861	0.7492	1.0914	1.1873	24	9.8747	0.7997	0.9817	1.3100
10	9.7880	0.7480	1.0829	1.1936	25	9.8757	0.8020	0.1039	1.3096
11	+9.7894	+0.7472	-1.0741	-1.1997	26	+9.8771	+0.8048	+0.1991	1.3090
12	9.7904	0.7473	1.0650	1.2056	27	9.8789	0.8078	0.2770	1.3084
13	9.7912	0.7486	1.0556	1.2112	28	9.8812	0.8103	0.3429	1.3076
14	9.7921	0.7514	1.0458	1.2167	29	9.8839	0.8118	0.4000	1.3067
15	9.7933	0.7554	1.0357	1.2220	30	9.8867	0.8122	0.4504	1.3056
16	+9.7950	+0.7601	-1.0252	-1.2271	July 1	+9.8894	+0.8112	+0.4954	1.3045
17	+9.7973	+0.7649	-1.0144	-1.2320	2	+9.8919	+0.8093	+0.5361	1.3032

BESSELIAN STAR-NUMBERS, 1901.

293

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
July 1	+ 9.8894	+ 0.8112	+ 0.4954	- 1.3045	Aug. 16	+ 9.9573	+ 0.7739	+ 1.1788	- 1.0841
2	9.8919	0.8093	0.5361	1.3032	17	9.9573	0.7731	1.1840	1.0741
3	9.8940	0.8066	0.5731	1.3018	18	9.9574	0.7736	1.1891	1.0636
4	9.8956	0.8039	0.6072	1.3002	19	9.9578	0.7752	1.1941	1.0528
5	9.8969	0.8016	0.6387	1.2986	20	9.9585	0.7773	1.1988	1.0416
h					(22.0)				
(19.0) 6	+ 9.8979	+ 0.8002	+ 0.6679	- 1.2968	21	+ 9.9596	+ 0.7794	+ 1.2034	- 1.0299
7	9.8988	0.8000	0.6952	1.2949	22	9.9611	0.7809	1.2078	1.0178
8	9.8999	0.8011	0.7207	1.2928	23	9.9628	0.7813	1.2121	1.0053
9	9.9011	0.8030	0.7448	1.2907	24	9.9645	0.7804	1.2161	0.9922
10	9.9028	0.8054	0.7674	1.2883	25	9.9661	0.7782	1.2201	0.9785
11	+ 9.9049	+ 0.8078	+ 0.7888	- 1.2859	26	+ 9.9675	+ 0.7752	+ 1.2238	- 0.9643
12	9.9074	0.8095	0.8091	1.2833	27	9.9686	0.7716	1.2275	0.9495
13	9.9101	0.8102	0.8284	1.2806	28	9.9692	0.7683	1.2309	0.9340
14	9.9128	0.8096	0.8467	1.2777	29	9.9696	0.7656	1.2343	0.9179
15	9.9153	0.8078	0.8641	1.2748	30	9.9697	0.7642	1.2374	0.9009
16	+ 9.9175	+ 0.8051	+ 0.8809	- 1.2716	31	+ 9.9699	+ 0.7642	+ 1.2405	- 0.8831
17	9.9192	0.8019	0.8968	1.2683	Sept. 1	9.9702	0.7655	1.2433	0.8644
18	9.9204	0.7987	0.9121	1.2649	2	9.9708	0.7677	1.2461	0.8448
19	9.9212	0.7962	0.9268	1.2613	3	9.9717	0.7703	1.2487	0.8241
20	9.9217	0.7948	0.9408	1.2576	4	9.9730	0.7726	1.2512	0.8021
h					(23.0)				
(20.0) 21	+ 9.9222	+ 0.7946	+ 0.9543	- 1.2537	5	+ 9.9747	+ 0.7742	+ 1.2534	- 0.7789
22	9.9227	0.7956	0.9672	1.2497	6	9.9764	0.7746	1.2557	0.7543
23	9.9236	0.7974	0.9797	1.2455	7	9.9781	0.7737	1.2577	0.7280
24	9.9249	0.7995	0.9917	1.2411	8	9.9796	0.7716	1.2597	0.6998
25	9.9266	0.8014	1.0033	1.2366	9	9.9808	0.7687	1.2615	0.6696
26	+ 9.9287	+ 0.8025	+ 1.0145	- 1.2319	10	+ 9.9815	+ 0.7656	+ 1.2631	- 0.6369
27	9.9309	0.8024	1.0253	1.2270	11	9.9819	0.7629	1.2647	0.6014
28	9.9331	0.8011	1.0357	1.2220	12	9.9819	0.7611	1.2661	0.5627
29	9.9352	0.7986	1.0457	1.2167	13	9.9818	0.7607	1.2673	0.5199
30	9.9370	0.7952	1.0554	1.2113	14	9.9817	0.7617	1.2685	0.4723
31	+ 9.9383	+ 0.7917	+ 1.0647	- 1.2057	15	+ 9.9817	+ 0.7639	+ 1.2695	- 0.4186
Aug. 1	9.9394	0.7884	1.0738	1.1999	16	9.9821	0.7669	1.2704	0.3572
2	9.9399	0.7859	1.0825	1.1939	17	9.9828	0.7701	1.2712	0.2855
3	9.9404	0.7846	1.0910	1.1876	18	9.9839	0.7728	1.2718	0.1993
4	9.9409	0.7847	1.0992	1.1812	19	9.9852	0.7745	1.2723	0.0916
h					h				
(21.0) 5	+ 9.9417	+ 0.7858	+ 1.1073	- 1.1745	(0.0) 20	+ 9.9867	+ 0.7751	+ 1.2727	- 9.9474
6	9.9428	0.7877	1.1148	1.1676	21	9.9880	0.7743	1.2730	9.7301
7	9.9443	0.7897	1.1222	1.1605	22	9.9893	0.7726	1.2731	- 9.2736
8	9.9461	0.7912	1.1293	1.1531	23	9.9902	0.7702	1.2731	+ 9.2066
9	9.9483	0.7919	1.1363	1.1455	24	9.9907	0.7678	1.2730	9.7086
10	+ 9.9504	+ 0.7913	+ 1.1430	- 1.1376	25	+ 9.9910	+ 0.7659	+ 1.2727	+ 9.9351
11	9.9525	0.7894	1.1494	1.1294	26	9.9911	0.7653	1.2724	0.0830
12	9.9543	0.7864	1.1557	1.1210	27	9.9911	0.7659	1.2719	0.1932
13	9.9556	0.7828	1.1618	1.1122	28	9.9912	0.7680	1.2712	0.2810
14	9.9566	0.7792	1.1676	1.1032	29	9.9916	0.7711	1.2705	0.3538
15	+ 9.9570	+ 0.7760	+ 1.1733	- 1.0939	30	+ 9.9922	+ 0.7749	+ 1.2696	+ 0.4162
16	+ 9.9573	+ 0.7739	+ 1.1788	- 1.0841	Oct. 1	+ 9.9934	+ 0.7785	+ 1.2685	+ 0.4706

$$E = + 0''.03 = + 0''.002$$

BESSELIAN STAR-NUMBERS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Oct. 1	+9.9934	+0.7785	+1.2685	+0.4706	Nov. 16	+0.0376	+0.8437	+1.0405	+1.2195
2	9.9949	0.7815	1.2674	0.5188	17	0.0388	0.8427	1.0297	1.2249
3	9.9965	0.7835	1.2661	0.5621	18	0.0397	0.8418	1.0184	1.2302
4	9.9981	0.7842	1.2647	0.6014	h 19	0.0403	0.8416	1.0068	1.2352
5	9.9996	0.7837	1.2631	0.6374	(4.0) 20	0.0408	0.8425	0.9946	1.2400
h					21	+0.0413	+0.8442	+0.9820	+1.2447
(1.0) 6	+0.0008	+0.7823	+1.2614	+0.6705	22	0.0420	0.8471	0.9689	1.2492
7	0.0017	0.7805	1.2516	0.7011	23	0.0430	0.8507	0.9552	1.2535
8	0.0021	0.7789	1.2576	0.7296	24	0.0443	0.8545	0.9409	1.2576
9	0.0023	0.7781	1.2555	0.7563	25	0.0459	0.8581	0.9260	1.2615
10	0.0022	0.7784	1.2533	0.7812	26	+0.0478	+0.8608	+0.9106	+1.2653
11	+0.0021	+0.7801	+1.2509	+0.8048	27	0.0498	0.8626	0.8942	1.2689
12	0.0021	0.7831	1.2483	0.8270	28	0.0518	0.8632	0.8772	1.2723
13	0.0024	0.7870	1.2457	0.8480	29	0.0536	0.8630	0.8592	1.2756
14	0.0031	0.7911	1.2428	0.8680	30	0.0552	0.8620	0.8404	1.2788
15	0.0041	0.7951	1.2398	0.8869	Dec. 1	+0.0563	+0.8605	+0.8205	+1.2817
16	+0.0054	+0.7982	+1.2367	+0.9049	2	0.0572	0.8595	0.7995	1.2845
17	0.0069	0.8002	1.2334	0.9221	3	0.0578	0.8593	0.7774	1.2872
18	0.0084	0.8010	1.2300	0.9386	4	0.0583	0.8600	0.7538	1.2897
19	0.0098	0.8006	1.2263	0.9543	5	0.0588	0.8618	0.7288	1.2921
20	0.0109	0.7996	1.2226	0.9693	h				
(2.0) 21	+0.0118	+0.7983	+1.2186	+0.9838	(5.0) 6	+0.0595	+0.8644	+0.7021	+1.2943
22	0.0123	0.7974	1.2145	0.9975	7	0.0604	0.8676	0.6735	1.2964
23	0.0125	0.7974	1.2102	1.0109	8	0.0616	0.8708	0.6427	1.2983
24	0.0128	0.7986	1.2057	1.0237	9	0.0632	0.8736	0.6094	1.3001
25	0.0130	0.8011	1.2011	1.0360	10	0.0649	0.8756	0.5732	1.3018
26	+0.0135	+0.8046	+1.1962	+1.0478	11	+0.0668	+0.8765	+0.5335	+1.3033
27	0.0143	0.8088	1.1912	1.0592	12	0.0686	0.8763	0.4897	1.3046
28	0.0155	0.8131	1.1860	1.0702	13	0.0702	0.8752	0.4407	1.3058
29	0.0169	0.8171	1.1806	1.0808	14	0.0716	0.8736	0.3854	1.3069
30	0.0187	0.8200	1.1749	1.0910	15	0.0727	0.8719	0.3219	1.3079
31	+0.0205	+0.8217	+1.1691	+1.1008	16	+0.0736	+0.8706	+0.2473	+1.3087
Nov. 1	0.0223	0.8223	1.1630	1.1103	17	0.0743	0.8701	0.1569	1.3093
2	0.0238	0.8220	1.1567	1.1195	18	0.0749	0.8707	0.0424	1.3098
3	0.0250	0.8211	1.1502	1.1284	19	0.0757	0.8722	0.8862	1.3102
4	0.0258	0.8201	1.1435	1.1370	20	0.0768	0.8745	0.6398	1.3105
h					h				
(3.0) 5	+0.0263	+0.8197	+1.1365	+1.1452	(6.0) 21	+0.0779	+0.8772	+0.9120	+1.3106
6	0.0266	0.8203	1.1292	1.1532	22	0.0794	0.8797	-0.9623	1.3105
7	0.0268	0.8220	1.1217	1.1609	23	0.0812	0.8817	0.7511	1.3104
8	0.0270	0.8248	1.1139	1.1684	24	0.0832	0.8828	0.9528	1.3101
9	0.0275	0.8286	1.1059	1.1756	25	0.0852	0.8827	0.0899	1.3096
10	+0.0284	+0.8328	+1.0975	+1.1826	26	+0.0870	+0.8816	-0.1940	+1.3091
11	0.0295	0.8368	1.0888	1.1893	27	0.0886	0.8798	0.2776	1.3084
12	0.0310	0.8403	1.0799	1.1958	28	0.0899	0.8776	0.3477	1.3075
13	0.0327	0.8427	1.0705	1.2020	29	0.0909	0.8755	0.4079	1.3065
14	0.0344	0.8441	1.0609	1.2081	30	0.0916	0.8739	0.4606	1.3054
15	+0.0361	+0.8443	+1.0509	+1.2139	31	+0.0921	+0.8732	-0.5074	+1.3041
16	+0.0376	+0.8437	+1.0405	+1.2195	32	+0.0926	+0.8735	-0.5496	+1.3027

$$E = + 0''.03 = + 0''.002$$

INDEPENDENT STAR-NUMBERS, 1901.

295

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f		G		H		Log g .	Log h .	i	Log i .		
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
	y	s	s	s	h m	s	h m			"			
Jan.	0	0.0004	+ 0.942	+ 0.953	39 56	2 39.7	350 42	23 22.8	+ 0.9027	+ 1.3095	- 1.43	- 0.1554	
	1	0.0032	0.955	0.963	39 44	2 38.9	349 45	23 19.0	0.9078	1.3093	1.57	0.1966	
	2	0.0059	0.971	0.974	39 25	2 37.7	348 49	23 15.3	0.9129	1.3091	1.71	0.2341	
	3	0.0086	0.988	0.984	39 0	2 36.0	347 52	23 11.5	0.9175	1.3088	1.86	0.2685	
	h (7.0)	4	0.0114	1.004	0.995	38 30	2 34.0	346 56	23 7.7	0.9216	1.3085	2.00	0.3002
	5	0.0141	+ 1.020	+ 1.006	37 57	2 31.8	345 59	23 3.9	+ 0.9247	+ 1.3082	- 2.14	- 0.3296	
	6	0.0169	1.033	1.016	37 23	2 29.5	345 2	23 0.1	0.9269	1.3079	2.27	0.3570	
	7	0.0196	1.042	1.026	36 53	2 27.5	344 5	22 56.3	0.9282	1.3075	2.41	0.3827	
	8	0.0223	1.049	1.037	36 29	2 25.9	343 9	22 52.6	0.9289	1.3072	2.55	0.4068	
	9	0.0251	1.054	1.047	36 11	2 24.7	342 12	22 48.8	0.9293	1.3068	2.69	0.4296	
	10	0.0278	+ 1.058	+ 1.057	36 1	2 24.1	341 14	22 44.9	+ 0.9299	+ 1.3064	- 2.82	- 0.4510	
	11	0.0305	1.061	1.067	35 57	2 23.8	340 17	22 41.1	0.9311	1.3060	2.96	0.4713	
	12	0.0333	1.066	1.077	35 57	2 23.8	339 20	22 37.3	0.9330	1.3056	3.09	0.4906	
	13	0.0360	1.073	1.087	35 56	2 23.7	338 22	22 33.5	0.9358	1.3051	3.23	0.5089	
	14	0.0388	1.083	1.097	35 52	2 23.5	337 25	22 29.7	0.9393	1.3046	3.36	0.5263	
	15	0.0415	+ 1.095	+ 1.107	35 43	2 22.9	336 27	22 25.8	+ 0.9432	+ 1.3042	- 3.49	- 0.5429	
	16	0.0442	1.109	1.117	35 26	2 21.7	335 29	22 21.9	0.9473	1.3037	3.62	0.5588	
	17	0.0470	1.124	1.127	35 3	2 20.2	334 31	22 18.1	0.9511	1.3031	3.75	0.5740	
	18	0.0497	1.139	1.136	34 35	2 18.3	333 33	22 14.2	0.9543	1.3026	3.88	0.5886	
	h (8.0)	19	0.0524	1.152	1.146	34 4	2 16.3	332 35	22 10.3	0.9568	1.3021	4.00	0.6025
	20	0.0552	+ 1.164	+ 1.155	33 33	2 14.2	331 37	22 6.5	+ 0.9585	+ 1.3015	- 4.13	- 0.6159	
	21	0.0579	1.173	1.165	33 5	2 12.3	330 39	22 2.6	0.9595	1.3010	4.25	0.6287	
	22	0.0607	1.180	1.174	32 42	2 10.8	329 40	21 58.7	0.9602	1.3004	4.37	0.6410	
	23	0.0634	1.184	1.183	32 25	2 9.7	328 41	21 54.7	0.9606	1.2998	4.50	0.6529	
	24	0.0661	1.189	1.192	32 16	2 9.1	327 42	21 50.8	0.9615	1.2992	4.62	0.6643	
	25	0.0689	+ 1.194	+ 1.201	32 12	2 8.8	326 43	21 46.9	+ 0.9629	+ 1.2986	- 4.73	- 0.6752	
	26	0.0716	1.200	1.210	32 11	2 8.7	325 44	21 42.9	0.9650	1.2980	4.85	0.6858	
	27	0.0743	1.208	1.219	32 8	2 8.5	324 45	21 39.0	0.9679	1.2974	4.97	0.6960	
	28	0.0771	1.219	1.228	32 2	2 8.1	323 45	21 35.0	0.9714	1.2967	5.08	0.7058	
	29	0.0798	1.232	1.236	31 53	2 7.5	322 46	21 31.1	0.9751	1.2961	5.19	0.7153	
	30	0.0826	+ 1.246	+ 1.245	31 36	2 6.4	321 46	21 27.1	+ 0.9788	+ 1.2955	- 5.30	- 0.7244	
31	0.0853	1.260	1.253	31 15	2 5.0	320 46	21 23.1	0.9821	1.2948	5.41	0.7332		
Feb.	1	0.0880	1.274	1.261	30 49	2 3.3	319 46	21 19.1	0.9848	1.2942	5.52	0.7417	
	2	0.0908	1.285	1.270	30 22	2 1.5	318 45	21 15.0	0.9866	1.2935	5.62	0.7499	
	h (9.0)	3	0.0935	1.294	1.278	29 56	1 59.7	317 45	21 11.0	0.9876	1.2928	5.73	0.7578
	4	0.0963	+ 1.299	+ 1.286	29 34	1 58.3	316 44	21 6.9	+ 0.9879	+ 1.2922	- 5.83	- 0.7655	
	5	0.0990	1.303	1.294	29 18	1 57.2	315 43	21 2.9	0.9878	1.2915	5.92	0.7727	
	6	0.1017	1.304	1.301	29 8	1 56.5	314 42	20 58.8	0.9877	1.2909	6.02	0.7798	
	7	0.1045	1.305	1.309	29 4	1 56.3	313 41	20 54.7	0.9878	1.2902	6.12	0.7867	
	8	0.1072	1.307	1.317	29 5	1 56.3	312 40	20 50.7	0.9886	1.2895	6.21	0.7933	
	9	0.1099	+ 1.311	+ 1.324	29 8	1 56.5	311 39	20 46.6	+ 0.9900	+ 1.2889	- 6.30	- 0.7997	
	10	0.1127	1.317	1.332	29 10	1 56.7	310 37	20 42.5	0.9921	1.2882	6.39	0.8058	
	11	0.1154	1.325	1.339	29 9	1 56.6	309 35	20 38.3	0.9947	1.2876	6.48	0.8117	
	12	0.1182	1.337	1.346	29 2	1 56.1	308 33	20 34.2	0.9977	1.2869	6.57	0.8174	
	13	0.1209	1.349	1.353	28 48	1 55.2	307 31	20 30.1	1.0009	1.2863	6.65	0.8229	
	14	0.1236	+ 1.361	+ 1.360	28 29	1 53.9	306 29	20 25.9	+ 1.0036	+ 1.2856	- 6.73	- 0.8282	
	15	0.1264	+ 1.372	+ 1.367	28 7	1 52.5	305 26	20 21.7	+ 1.0055	+ 1.2850	- 6.81	- 0.8333	

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f		f'		G		H		Log g .	Log h .	i	Log i
		In Time.	In Time	In Arc.	In Time.	In Arc.	In Time.						
	y	s	s	°	h m	°	h m					"	
Feb.	15	0.1264	+ 1.372	+ 1.367	28 7	1 52.5	305 26	20 21.7	+ 1.0055	+ 1.2850	- 6.81	- 0.8333	
	16	0.1291	1.382	1.374	27 42	1 50.8	304 24	20 17.6	1.0071	1.2844	6.89	0.8382	
	17	0.1318	1.390	1.381	27 20	1 49.3	303 21	20 13.4	1.0079	1.2838	6.97	0.8429	
	18	0.1346	1.394	1.388	27 1	1 48.1	302 18	20 9.2	1.0082	1.2832	7.04	0.8474	
	19	0.1373	1.398	1.394	26 48	1 47.2	301 15	20 5.0	1.0082	1.2826	7.11	0.8518	
h (10.0)	20	0.1401	+ 1.399	+ 1.401	26 41	1 46.7	300 12	20 0.8	+ 1.0084	+ 1.2820	- 7.18	- 0.8559	
	21	0.1428	1.401	1.407	26 41	1 46.7	299 9	19 56.6	1.0089	1.2814	7.24	0.8599	
	22	0.1455	1.404	1.414	26 43	1 46.9	298 5	19 52.3	1.0100	1.2809	7.31	0.8638	
	23	0.1483	1.409	1.420	26 47	1 47.1	297 2	19 48.1	1.0118	1.2804	7.37	0.8674	
	24	0.1510	1.417	1.426	26 49	1 47.3	295 58	19 43.9	1.0143	1.2798	7.43	0.8709	
	25	0.1537	+ 1.427	+ 1.432	26 47	1 47.1	294 54	19 39.6	+ 1.0174	+ 1.2793	- 7.48	- 0.8742	
	26	0.1565	1.438	1.438	26 41	1 46.7	293 50	19 35.3	1.0203	1.2788	7.54	0.8774	
	27	0.1592	1.450	1.444	26 30	1 46.0	292 46	19 31.1	1.0232	1.2783	7.59	0.8804	
	28	0.1620	1.461	1.450	26 13	1 44.9	291 42	19 26.8	1.0255	1.2779	7.64	0.8832	
Mar.	1	0.1647	1.471	1.456	25 54	1 43.6	290 38	19 22.5	1.0272	1.2774	7.69	0.8859	
	2	0.1674	+ 1.478	+ 1.462	25 34	1 42.3	289 33	19 18.2	+ 1.0282	+ 1.2770	- 7.73	- 0.8885	
	3	0.1702	1.482	1.467	25 18	1 41.2	288 29	19 13.9	1.0285	1.2766	7.78	0.8909	
	4	0.1729	1.484	1.473	25 6	1 40.4	287 25	19 9.7	1.0282	1.2762	7.82	0.8932	
	5	0.1757	1.484	1.479	24 59	1 39.9	286 20	19 5.3	1.0279	1.2759	7.86	0.8953	
	6	0.1784	1.483	1.484	24 59	1 39.9	285 15	19 1.0	1.0276	1.2755	7.89	0.8972	
h (11.0)	7	0.1811	+ 1.483	+ 1.490	25 4	1 40.3	284 11	18 56.7	+ 1.0277	+ 1.2752	- 7.93	- 0.8991	
	8	0.1839	1.484	1.495	25 12	1 40.8	283 6	18 52.4	1.0285	1.2749	7.96	0.9007	
	9	0.1866	1.487	1.501	25 20	1 41.3	282 1	18 48.1	1.0299	1.2746	7.99	0.9023	
	10	0.1893	1.493	1.506	25 26	1 41.7	280 56	18 43.7	1.0320	1.2744	8.01	0.9037	
	11	0.1921	1.501	1.511	25 28	1 41.9	279 51	18 39.4	1.0345	1.2741	8.03	0.9050	
	12	0.1948	+ 1.511	+ 1.517	25 24	1 41.6	278 46	18 35.1	+ 1.0372	+ 1.2739	- 8.05	- 0.9061	
	13	0.1976	1.522	1.522	25 15	1 41.0	277 41	18 30.7	1.0397	1.2737	8.07	0.9071	
	14	0.2003	1.532	1.527	25 2	1 40.1	276 36	18 26.4	1.0418	1.2736	8.09	0.9080	
	15	0.2030	1.540	1.533	24 46	1 39.1	275 31	18 22.1	1.0433	1.2735	8.10	0.9087	
	16	0.2058	1.547	1.538	24 30	1 38.0	274 26	18 17.7	1.0442	1.2733	8.12	0.9093	
	17	0.2085	+ 1.551	+ 1.544	24 18	1 37.2	273 21	18 13.4	+ 1.0446	+ 1.2732	- 8.13	- 0.9098	
	18	0.2112	1.554	1.550	24 8	1 36.5	272 16	18 9.1	1.0447	1.2732	8.13	0.9101	
	19	0.2140	1.554	1.555	24 6	1 36.4	271 11	18 4.7	1.0447	1.2731	8.13	0.9103	
	20	0.2167	1.554	1.559	24 9	1 36.6	270 6	18 0.4	1.0450	1.2731	8.14	0.9104	
	21	0.2195	1.555	1.564	24 17	1 37.1	269 1	17 56.1	1.0458	1.2731	8 14	0.9104	
h (12.0)	22	0.2222	+ 1.559	+ 1.569	24 26	1 37.7	267 56	17 51.7	+ 1.0473	+ 1.2732	- 8.13	- 0.9102	
	23	0.2249	1.565	1.574	24 34	1 38.3	266 51	17 47.4	1.0495	1.2732	8.13	0.9099	
	24	0.2277	1.572	1.579	24 41	1 38.7	265 47	17 43.1	1.0519	1.2733	8.12	0.9094	
	25	0.2304	1.583	1.585	24 43	1 38.9	264 42	17 38.8	1.0547	1.2734	8.11	0.9089	
	26	0.2331	1.594	1.590	24 39	1 38.6	263 38	17 34.5	1.0577	1.2735	8.09	0.9082	
	27	0.2359	+ 1.605	+ 1.595	24 31	1 38.1	262 33	17 30.2	+ 1.0603	+ 1.2737	- 8.08	- 0.9073	
	28	0.2386	1.614	1.601	24 20	1 37.3	261 29	17 25.9	1.0622	1.2739	8.06	0.9063	
	29	0.2414	1.622	1.606	24 7	1 36.5	260 24	17 21.6	1.0636	1.2741	8.04	0.9053	
	30	0.2441	1.627	1.611	23 56	1 35.7	259 20	17 17.3	1.0643	1.2743	8.02	0.9041	
	31	0.2468	1.630	1.617	23 48	1 35.2	258 16	17 13.1	1.0645	1.2745	7.99	0.9027	
Apr.	1	0.2496	+ 1.630	+ 1.622	23 45	1 35.0	257 12	17 8.8	+ 1.0644	+ 1.2748	- 7.97	- 0.9012	
	2	0.2523	+ 1.629	+ 1.627	23 48	1 35.2	256 8	17 4.5	+ 1.0643	+ 1.2751	- 7.94	- 0.8996	

INDEPENDENT STAR-NUMBERS, 1901.

297

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		<i>f</i>		<i>f'</i>		<i>G</i>		<i>H</i>		Log <i>g</i> .	Log <i>h</i> .	<i>i</i>	Log <i>i</i> .
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
		s	s	s	h m	°	h m					"	
Apr.	1	0.2496	+ 1.630	+ 1.622	23 45	1 35.0	257 12	17 8.8	+ 1.0644	+ 1.2748	- 7.97	- 0.9012	
	2	0.2523	1.629	1.627	23 48	1 35.2	256 8	17 4.5	1.0643	1.2751	7.94	0.8996	
	3	0.2550	1.628	1.633	23 56	1 35.7	255 4	17 0.3	1.0645	1.2754	7.90	0.8978	
	4	0.2578	1.628	1.638	24 7	1 36.5	254 1	16 56.1	1.0652	1.2757	7.87	0.8959	
	5	0.2605	1.631	1.644	24 20	1 37.3	252 57	16 51.8	1.0666	1.2761	7.83	0.8939	
	(13.0)	6	0.2633	+ 1.636	+ 1.649	24 31	1 38.1	251 54	16 47.6	+ 1.0686	+ 1.2765	- 7.79	- 0.8917
	7	0.2660	1.644	1.655	24 38	1 38.5	250 50	16 43.3	1.0712	1.2769	7.75	0.8894	
	8	0.2687	1.654	1.661	24 41	1 38.7	249 47	16 39.1	1.0739	1.2773	7.71	0.8870	
	9	0.2715	1.665	1.667	24 38	1 38.5	248 44	16 34.9	1.0766	1.2777	7.66	0.8844	
	10	0.2742	1.676	1.672	24 31	1 38.1	247 42	16 30.8	1.0790	1.2781	7.61	0.8817	
	11	0.2770	+ 1.685	+ 1.678	24 21	1 37.4	246 39	16 26.6	+ 1.0810	+ 1.2786	- 7.56	- 0.8788	
	12	0.2797	1.693	1.684	24 11	1 36.7	245 37	16 22.5	1.0824	1.2791	7.51	0.8758	
	13	0.2824	1.698	1.690	24 1	1 36.1	244 35	16 18.3	1.0833	1.2796	7.46	0.8726	
	14	0.2852	1.702	1.696	23 56	1 35.7	243 32	16 14.1	1.0838	1.2801	7.40	0.8693	
	15	0.2879	1.704	1.702	23 55	1 35.7	242 30	16 10.0	1.0842	1.2806	7.34	0.8658	
	16	0.2906	+ 1.705	+ 1.708	23 59	1 35.9	241 29	16 5.9	+ 1.0848	+ 1.2811	- 7.28	- 0.8622	
	17	0.2934	1.707	1.715	24 8	1 36.5	240 27	16 1.8	1.0858	1.2817	7.22	0.8585	
	18	0.2961	1.711	1.721	24 19	1 37.3	239 26	15 57.7	1.0874	1.2822	7.15	0.8545	
	19	0.2989	1.717	1.727	24 30	1 38.0	238 25	15 53.7	1.0895	1.2828	7.08	0.8504	
	20	0.3016	1.725	1.734	24 39	1 38.6	237 24	15 49.6	1.0922	1.2833	7.02	0.8462	
	(14.0)	21	0.3043	+ 1.736	+ 1.740	24 45	1 39.0	236 23	15 45.5	+ 1.0954	+ 1.2839	- 6.95	- 0.8418
	22	0.3071	1.749	1.747	24 46	1 39.1	235 22	15 41.5	1.0985	1.2845	6.87	0.8372	
	23	0.3098	1.761	1.754	24 42	1 38.8	234 22	15 37.5	1.1014	1.2851	6.80	0.8324	
	24	0.3125	1.773	1.760	24 34	1 38.3	233 22	15 33.5	1.1039	1.2857	6.72	0.8275	
	25	0.3153	1.783	1.767	24 24	1 37.6	232 22	15 29.5	1.1058	1.2863	6.64	0.8223	
	26	0.3180	+ 1.791	+ 1.774	24 15	1 37.0	231 22	15 25.5	+ 1.1071	+ 1.2870	- 6.56	- 0.8170	
	27	0.3208	1.796	1.781	24 8	1 36.5	230 23	15 21.5	1.1079	1.2876	6.48	0.8115	
	28	0.3235	1.798	1.788	24 6	1 36.4	229 23	15 17.5	1.1083	1.2882	6.40	0.8059	
	29	0.3262	1.799	1.795	24 8	1 36.5	228 24	15 13.6	1.1087	1.2888	6.31	0.8000	
	30	0.3290	1.800	1.803	24 15	1 37.0	227 25	15 9.7	1.1093	1.2895	6.22	0.7939	
May	1	0.3317	+ 1.802	+ 1.810	24 25	1 37.7	226 26	15 5.7	+ 1.1103	+ 1.2901	- 6.13	- 0.7875	
	2	0.3344	1.807	1.818	24 37	1 38.5	225 28	15 1.9	1.1119	1.2907	6.04	0.7810	
	3	0.3372	1.812	1.825	24 48	1 39.2	224 30	14 58.0	1.1141	1.2914	5.95	0.7743	
	4	0.3399	1.821	1.833	24 57	1 39.8	223 32	14 54.1	1.1167	1.2920	5.85	0.7673	
	5	0.3427	1.832	1.840	25 1	1 40.1	222 34	14 50.3	1.1197	1.2926	5.75	0.7601	
	(15.0)	6	0.3454	+ 1.845	+ 1.848	25 0	1 40.0	221 36	14 46.4	+ 1.1226	+ 1.2933	- 5.66	- 0.7526
	7	0.3481	1.858	1.856	24 55	1 39.7	220 38	14 42.5	1.1254	1.2939	5.56	0.7449	
	8	0.3509	1.870	1.864	24 47	1 39.1	219 41	14 38.7	1.1277	1.2945	5.46	0.7370	
	9	0.3536	1.881	1.872	24 37	1 38.5	218 44	14 34.9	1.1296	1.2951	5.35	0.7287	
	10	0.3564	1.889	1.880	24 27	1 37.8	217 47	14 31.1	1.1310	1.2958	5.25	0.7202	
	11	0.3591	+ 1.895	+ 1.888	24 21	1 37.4	216 50	14 27.3	+ 1.1320	+ 1.2964	- 5.14	- 0.7114	
	12	0.3618	1.899	1.897	24 18	1 37.2	215 53	14 23.5	1.1328	1.2970	5.04	0.7023	
	13	0.3646	1.903	1.905	24 20	1 37.3	214 57	14 19.8	1.1337	1.2976	4.93	0.6929	
	14	0.3673	1.907	1.914	24 25	1 37.7	214 0	14 16.0	1.1350	1.2982	4.82	0.6831	
	15	0.3700	1.912	1.922	24 34	1 38.3	213 4	14 12.3	1.1367	1.2987	4.71	0.6730	
16	0.3728	+ 1.920	+ 1.931	24 43	1 38.9	212 8	14 8.5	+ 1.1389	+ 1.2993	- 4.60	- 0.6625		
17	0.3755	+ 1.930	+ 1.939	24 50	1 39.3	211 13	14 4.9	+ 1.1416	+ 1.2999	- 4.48	- 0.6517		

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f	f'	G		H		Log g .	Log h .	i	Log		
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
		y	s	s	° ' "	h m	° ' "	h m					
May	17	0.3755	+ 1.930	+ 1.939	24 50	1 39.3	211 13	14 4.9	+ 1.1416	+ 1.2999	- 4.48	0.6517	
	18	0.3783	1.942	1.948	24 55	1 39.7	210 18	14 1.2	1.1447	1.3004	4.37	0.6404	
	19	0.3810	1.957	1.957	24 55	1 39.7	209 22	13 57.5	1.1479	1.3010	4.25	0.6287	
	20	0.3837	1.972	1.966	24 51	1 39.4	208 27	13 53.8	1.1510	1.3015	4.13	0.6166	
	21	0.3865	1.987	1.975	24 43	1 38.9	207 31	13 50.1	1.1538	1.3020	4.02	0.6040	
	h (16.0)	22	0.3892	+ 2.000	+ 1.984	24 33	1 38.2	206 36	13 46.4	+ 1.1560	+ 1.3025	- 3.90	0.5910
		23	0.3919	2.010	1.993	24 22	1 37.5	205 41	13 42.7	1.1577	1.3030	3.78	0.5774
		24	0.3947	2.018	2.002	24 14	1 36.9	204 47	13 39.1	1.1589	1.3035	3.66	0.5632
		25	0.3974	2.023	2.012	24 8	1 36.5	203 52	13 35.5	1.1598	1.3040	3.53	0.5484
		26	0.4002	2.027	2.021	24 6	1 36.4	202 58	13 31.9	1.1604	1.3044	3.41	0.5330
		27	0.4029	+ 2.030	+ 2.030	24 8	1 36.5	202 4	13 28.3	+ 1.1612	+ 1.3049	3.29	0.5169
		28	0.4056	2.033	2.040	24 14	1 36.9	201 10	13 24.7	1.1623	1.3053	3.16	0.5001
		29	0.4084	2.039	2.049	24 22	1 37.5	200 16	13 21.1	1.1638	1.3057	3.01	0.4825
		30	0.4111	2.046	2.059	24 30	1 38.0	199 22	13 17.5	1.1659	1.3061	2.91	0.4639
		31	0.4138	2.056	2.069	24 36	1 38.4	198 28	13 13.9	1.1684	1.3065	2.78	0.4445
June	1	0.4166	+ 2.069	+ 2.078	24 38	1 38.5	197 34	13 10.3	+ 1.1712	+ 1.3069	- 2.65	- 0.4240	
	2	0.4193	2.083	2.088	24 36	1 38.4	196 41	13 6.7	1.1741	1.3072	2.52	0.4024	
	3	0.4221	2.098	2.098	24 30	1 38.0	195 47	13 3.1	1.1768	1.3075	2.40	0.3795	
	4	0.4248	2.113	2.108	24 21	1 37.4	194 54	12 59.6	1.1792	1.3078	2.27	0.3552	
	5	0.4275	2.126	2.118	24 10	1 36.7	194 0	12 56.0	1.1813	1.3081	2.13	0.3294	
	h (17.0)	6	0.4303	+ 2.136	+ 2.128	23 58	1 35.9	193 7	12 52.5	+ 1.1828	+ 1.3085	2.00	- 0.3018
		7	0.4330	2.145	2.138	23 48	1 35.2	192 14	12 48.9	1.1840	1.3088	1.87	0.2722
		8	0.4358	2.151	2.148	23 42	1 34.8	191 21	12 45.4	1.1849	1.3090	1.74	0.2404
		9	0.4385	2.157	2.158	23 38	1 34.5	190 28	12 41.9	1.1859	1.3092	1.61	0.2059
		10	0.4412	2.162	2.168	23 39	1 34.6	189 35	12 38.3	1.1869	1.3095	1.47	0.1683
		11	0.4440	+ 2.168	+ 2.178	23 43	1 34.9	188 42	12 34.8	+ 1.1884	+ 1.3097	- 1.34	- 0.1270
		12	0.4467	2.177	2.188	23 48	1 35.2	187 50	12 31.3	1.1904	1.3098	1.21	0.0812
		13	0.4494	2.188	2.198	23 52	1 35.5	186 57	12 27.8	1.1928	1.3100	1.07	0.0299
		14	0.4522	2.201	2.208	23 54	1 35.6	186 4	12 24.3	1.1955	1.3101	0.93	9.9717
		15	0.4549	2.216	2.218	23 53	1 35.5	185 11	12 20.7	1.1984	1.3103	0.80	9.9042
h (18.0)	16	0.4577	+ 2.232	+ 2.229	23 47	1 35.1	184 19	12 17.3	+ 1.2013	+ 1.3104	- 0.67	- 9.8241	
	17	0.4604	2.248	2.239	23 38	1 34.5	183 26	12 13.7	1.2040	1.3104	0.53	9.7260	
	18	0.4631	2.263	2.249	23 25	1 33.7	182 33	12 10.2	1.2061	1.3105	0.40	9.5983	
	19	0.4659	2.276	2.259	23 14	1 32.9	181 41	12 6.7	1.2079	1.3106	0.26	9.4170	
	20	0.4686	2.286	2.270	23 3	1 32.2	180 48	12 3.2	1.2092	1.3106	- 0.13	- 9.0992	
	21	0.4713	+ 2.293	+ 2.280	22 53	1 31.5	179 56	11 59.7	+ 1.2100	+ 1.3106	+ 0.01	+ 7.9914	
	22	0.4741	2.298	2.290	22 47	1 31.1	179 3	11 56.2	1.2107	1.3106	0.15	9.1620	
	23	0.4768	2.302	2.300	22 45	1 31.0	178 11	11 52.7	1.2113	1.3106	0.28	9.4481	
	24	0.4796	2.306	2.310	22 46	1 31.1	177 18	11 49.2	1.2121	1.3105	0.42	9.6190	
	25	0.4823	2.311	2.321	22 49	1 31.3	176 26	11 45.7	1.2133	1.3104	0.55	9.7412	
	26	0.4850	+ 2.318	+ 2.331	22 54	1 31.6	175 34	11 42.3	+ 1.2148	+ 1.3103	+ 0.69	+ 9.8364	
	27	0.4878	2.328	2.341	22 57	1 31.8	174 41	11 38.7	1.2169	1.3102	0.82	9.9143	
	28	0.4905	2.340	2.351	22 57	1 31.8	173 48	11 35.2	1.2192	1.3101	0.95	9.9802	
	29	0.4932	2.355	2.361	22 54	1 31.6	172 56	11 31.7	1.2217	1.3100	1.09	0.0373	
	30	0.4960	2.369	2.371	22 48	1 31.2	172 3	11 28.2	1.2241	1.3098	1.22	0.0877	
July	1	0.4987	+ 2.385	+ 2.382	22 37	1 30.5	171 11	11 24.7	+ 1.2263	+ 1.3096	+ 1.36	+ 0.1327	
	2	0.5015	+ 2.399	+ 2.392	22 24	1 29.6	170 18	11 21.2	+ 1.2281	+ 1.3094	+ 1.49	+ 0.1734	

INDEPENDENT STAR-NUMBERS, 1901.

299

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f		f'		G		H		Log g .	Log h .	i	Log i .
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
		y	s	s	°	h m	°	h m					"	
July	1	0.4987	+ 2.385	+ 2.382	22 37	1 30.5	171 11	11 24.7	+ 1.2263	+ 1.3096	+ 1.36	+ 0.1327		
	2	0.5015	2.399	2.392	22 24	1 29.6	170 18	11 21.2	1.2281	1.3094	1.49	0.1734		
	3	0.5042	2.410	2.402	22 11	1 28.7	169 25	11 17.7	1.2295	1.3092	1.62	0.2104		
	4	0.5069	2.419	2.412	21 59	1 27.9	168 32	11 14.1	1.2306	1.3090	1.76	0.2445		
	5	0.5097	2.427	2.422	21 49	1 27.3	167 39	11 10.6	1.2313	1.3087	1.89	0.2760		
	h	6	0.5124	+ 2.432	+ 2.432	21 43	1 26.9	166 46	11 7.1	+ 1.2320	+ 1.3085	+ 2.02	+ 0.3052	
	(19.0)	7	0.5152	2.437	2.442	21 40	1 26.7	165 53	11 3.5	1.2327	1.3082	2.15	0.3325	
	8	0.5179	2.443	2.452	21 40	1 26.7	165 0	11 0.0	1.2338	1.3079	2.28	0.3580		
	9	0.5206	2.450	2.461	21 42	1 26.8	164 7	10 56.5	1.2352	1.3076	2.41	0.3821		
	10	0.5234	2.459	2.471	21 44	1 26.9	163 14	10 52.9	1.2369	1.3072	2.54	0.4047		
	11	0.5261	+ 2.471	+ 2.480	21 44	1 26.9	162 20	10 49.3	+ 1.2391	+ 1.3069	+ 2.67	+ 0.4261		
	12	0.5288	2.485	2.490	21 42	1 26.8	161 27	10 45.8	1.2415	1.3065	2.79	0.4464		
	13	0.5316	2.501	2.500	21 37	1 26.5	160 33	10 42.2	1.2439	1.3061	2.92	0.4657		
	14	0.5343	2.517	2.509	21 28	1 25.9	159 40	10 38.7	1.2462	1.3057	3.05	0.4840		
	15	0.5371	2.532	2.519	21 16	1 25.1	158 46	10 35.1	1.2481	1.3053	3.17	0.5014		
	16	0.5398	+ 2.544	+ 2.528	21 3	1 24.2	157 52	10 31.5	+ 1.2496	+ 1.3049	+ 3.30	+ 0.5182		
	17	0.5425	2.554	2.538	20 50	1 23.3	156 58	10 27.9	1.2507	1.3044	3.42	0.5341		
	18	0.5453	2.561	2.547	20 39	1 22.6	156 4	10 24.3	1.2513	1.3040	3.54	0.5494		
	19	0.5480	2.566	2.556	20 30	1 22.0	155 10	10 20.7	1.2517	1.3035	3.66	0.5640		
	20	0.5507	2.569	2.565	20 25	1 21.7	154 16	10 17.1	1.2520	1.3030	3.78	0.5781		
h	21	0.5535	+ 2.572	+ 2.574	20 24	1 21.6	153 21	10 13.4	+ 1.2524	+ 1.3025	+ 3.90	+ 0.5916		
(20.0)	22	0.5562	2.575	2.583	20 25	1 21.7	152 26	10 9.7	1.2530	1.3020	4.02	0.6045		
23	0.5590	2.580	2.592	20 27	1 21.8	151 32	10 6.1	1.2540	1.3015	4.14	0.6170			
24	0.5617	2.588	2.601	20 29	1 21.9	150 37	10 2.5	1.2554	1.3009	4.26	0.6290			
25	0.5644	2.598	2.610	20 30	1 22.0	149 42	9 58.8	1.2572	1.3004	4.37	0.6406			
26	0.5672	+ 2.610	+ 2.618	20 27	1 21.8	148 47	9 55.1	+ 1.2591	+ 1.2999	+ 4.48	+ 0.6518			
27	0.5699	2.624	2.627	20 21	1 21.4	147 51	9 51.4	1.2611	1.2993	4.60	0.6625			
28	0.5726	2.637	2.635	20 12	1 20.8	146 56	9 47.7	1.2629	1.2987	4.71	0.6729			
29	0.5754	2.650	2.644	20 0	1 20.0	146 0	9 44.0	1.2644	1.2982	4.82	0.6830			
30	0.5781	2.661	2.652	19 47	1 19.1	145 4	9 40.3	1.2655	1.2976	4.93	0.6927			
31	0.5809	+ 2.669	+ 2.661	19 35	1 18.3	144 8	9 36.5	+ 1.2663	+ 1.2970	+ 5.03	+ 0.7020			
Aug.	1	0.5836	2.676	2.669	19 24	1 17.6	143 12	9 32.8	1.2669	1.2964	5.14	0.7111		
	2	0.5863	2.679	2.677	19 17	1 17.1	142 16	9 29.1	1.2671	1.2958	5.25	0.7198		
	3	0.5891	2.682	2.685	19 13	1 16.9	141 19	9 25.3	1.2674	1.2952	5.35	0.7283		
	4	0.5918	2.685	2.693	19 11	1 16.7	140 23	9 21.5	1.2679	1.2946	5.45	0.7364		
	h	5	0.5946	+ 2.690	+ 2.701	19 12	1 16.8	139 26	9 17.7	+ 1.2687	+ 1.2940	+ 5.55	+ 0.7444	
	(21.0)	6	0.5973	2.697	2.709	19 14	1 16.9	138 29	9 13.9	1.2699	1.2933	5.65	0.7521	
	7	0.6000	2.706	2.716	19 15	1 17.0	137 32	9 10.1	1.2714	1.2926	5.75	0.7594		
	8	0.6028	2.717	2.724	19 15	1 17.0	136 34	9 6.3	1.2733	1.2921	5.84	0.7666		
	9	0.6055	2.731	2.732	19 11	1 16.7	135 36	9 2.4	1.2752	1.2914	5.93	0.7735		
	10	0.6082	+ 2.744	+ 2.739	19 4	1 16.3	134 39	8 58.6	+ 1.2771	+ 1.2908	+ 6.03	+ 0.7803		
	11	0.6110	2.757	2.746	18 55	1 15.7	133 41	8 54.7	1.2787	1.2902	6.12	0.7867		
	12	0.6137	2.768	2.753	18 43	1 14.9	132 42	8 50.8	1.2800	1.2895	6.21	0.7930		
	13	0.6165	2.777	2.761	18 31	1 14.1	131 44	8 46.9	1.2809	1.2889	6.30	0.7991		
	14	0.6192	2.783	2.768	18 20	1 13.3	130 46	8 43.1	1.2813	1.2883	6.38	0.8049		
	15	0.6219	+ 2.786	+ 2.775	18 12	1 12.8	129 47	8 39.1	+ 1.2815	+ 1.2877	+ 6.46	+ 0.8106		
	16	0.6247	+ 2.788	+ 2.782	18 7	1 12.5	128 48	8 35.2	+ 1.2814	+ 1.2871	+ 6.55	+ 0.8161		

INDEPENDENT STAR-NUMBERS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f		f'		G		H		Log g .	Log h .	i	Log i .	
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.							
		y	s	s	°	'	°	'	°	'					
Aug.	16	0.6247	+ 2.788	+ 2.782	18	7	128	48	8	35.2	+ 1.2814	+ 1.2871	+ 6.55	+ 0.8161	
	17	0.6274	2.788	2.788	18	4	127	49	8	31.3	1.2814	1.2865	6.63	0.8213	
	18	0.6301	2.789	2.795	18	5	126	50	8	27.3	1.2816	1.2858	6.70	0.8264	
	19	0.6329	2.791	2.802	18	8	125	50	8	23.3	1.2821	1.2852	6.78	0.8314	
	20	0.6356	2.796	2.808	18	11	124	51	8	19.4	1.2829	1.2847	6.86	0.8361	
	(22.0)	21	0.6384	+ 2.803	+ 2.815	18	14	123	51	8	15.4	+ 1.2841	+ 1.2841	+ 6.93	+ 0.8407
	22	0.6411	2.812	2.822	18	14	122	51	8	11.4	1.2856	1.2835	7.00	0.8451	
	23	0.6438	2.823	2.828	18	11	121	51	8	7.4	1.2872	1.2829	7.07	0.8494	
	24	0.6466	2.835	2.834	18	5	120	50	8	3.3	1.2886	1.2824	7.13	0.8534	
	25	0.6493	2.845	2.840	17	56	119	50	7	59.3	1.2899	1.2818	7.20	0.8574	
	26	0.6520	+ 2.854	+ 2.847	17	45	118	49	7	55.3	+ 1.2909	+ 1.2813	+ 7.26	+ 0.8612	
	27	0.6548	2.861	2.853	17	35	117	48	7	51.2	1.2915	1.2807	7.32	0.8648	
	28	0.6575	2.865	2.859	17	26	116	47	7	47.1	1.2918	1.2802	7.38	0.8682	
	29	0.6603	2.868	2.865	17	19	115	46	7	43.1	1.2918	1.2797	7.44	0.8716	
	30	0.6630	2.869	2.870	17	16	114	45	7	39.0	1.2918	1.2792	7.49	0.8747	
	31	0.6657	+ 2.870	+ 2.876	17	15	113	43	7	34.9	+ 1.2920	+ 1.2788	+ 7.55	+ 0.8778	
	Sept.	1	0.6685	2.872	2.882	17	17	112	41	7	30.7	1.2924	1.2783	7.60	0.8806
	2	0.6712	2.876	2.888	17	21	111	39	7	26.6	1.2931	1.2779	7.64	0.8834	
	3	0.6739	2.882	2.893	17	25	110	37	7	22.5	1.2942	1.2774	7.69	0.8860	
	4	0.6767	2.891	2.899	17	27	109	35	7	18.3	1.2957	1.2770	7.73	0.8885	
(23.0)	5	0.6794	+ 2.902	+ 2.904	17	27	108	32	7	14.1	+ 1.2973	+ 1.2766	+ 7.78	+ 0.8907	
	6	0.6822	2.913	2.910	17	24	107	30	7	10.0	1.2989	1.2763	7.82	0.8930	
	7	0.6849	2.925	2.915	17	18	106	27	7	5.8	1.3004	1.2759	7.85	0.8950	
	8	0.6876	2.935	2.921	17	10	105	24	7	1.6	1.3016	1.2756	7.89	0.8970	
	9	0.6904	2.943	2.926	17	1	104	21	6	57.4	1.3024	1.2753	7.92	0.8988	
	10	0.6931	+ 2.948	+ 2.931	16	52	103	18	6	53.2	+ 1.3028	+ 1.2750	+ 7.95	+ 0.9004	
	11	0.6959	2.950	2.937	16	46	102	15	6	49.0	1.3029	1.2747	7.98	0.9020	
	12	0.6986	2.950	2.942	16	42	101	12	6	44.8	1.3027	1.2744	8.00	0.9034	
	13	0.7013	2.950	2.947	16	41	100	8	6	40.5	1.3026	1.2742	8.03	0.9046	
	14	0.7041	2.948	2.952	16	43	99	5	6	36.3	1.3026	1.2740	8.05	0.9058	
	15	0.7068	+ 2.948	+ 2.957	16	48	98	1	6	32.1	+ 1.3028	+ 1.2738	+ 8.07	+ 0.9068	
	16	0.7095	2.951	2.963	16	54	96	58	6	27.9	1.3034	1.2736	8.09	0.9077	
	17	0.7123	2.956	2.968	16	59	95	54	6	23.6	1.3043	1.2735	8.10	0.9085	
	18	0.7150	2.963	2.973	17	3	94	50	6	19.3	1.3055	1.2734	8.11	0.9091	
	19	0.7178	2.972	2.978	17	4	93	46	6	15.1	1.3069	1.2733	8.12	0.9096	
	h	20	0.7205	+ 2.982	+ 2.983	17	2	92	42	6	10.8	+ 1.3083	+ 1.2732	+ 8.13	+ 0.9100
	(0.0)	21	0.7232	2.991	2.988	16	59	91	38	6	6.5	1.3095	1.2731	8.13	0.9103
	22	0.7260	3.000	2.993	16	51	90	35	6	2.3	1.3104	1.2731	8.13	0.9104	
	23	0.7287	3.006	2.998	16	43	89	31	5	58.1	1.3111	1.2731	8.13	0.9104	
	24	0.7315	3.010	3.003	16	37	88	27	5	53.8	1.3114	1.2731	8.13	0.9103	
	25	0.7342	+ 3.012	+ 3.008	16	33	87	22	5	49.5	+ 1.3115	+ 1.2732	+ 8.13	+ 0.9100	
	26	0.7369	3.012	3.013	16	31	86	18	5	45.2	1.3115	1.2733	8.12	0.9097	
	27	0.7397	3.012	3.019	16	32	85	14	5	40.9	1.3116	1.2734	8.11	0.9092	
	28	0.7424	3.013	3.024	16	36	84	9	5	36.6	1.3119	1.2735	8.10	0.9085	
	29	0.7451	3.016	3.029	16	42	83	5	5	32.3	1.3125	1.2736	8.09	0.9077	
	30	0.7479	+ 3.021	+ 3.034	16	49	82	1	5	28.1	+ 1.3134	+ 1.2738	+ 8.07	+ 0.9069	
	Oct.	1	0.7506	+ 3.029	+ 3.039	16	55	80	57	5	23.8	+ 1.3147	+ 1.2740	+ 8.05	+ 0.9058

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f	f'	G		H		Log g .	Log h .	i	Log i
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
Oct.	1	y 0.7506	s + 3.029	s + 3.039	° 16 55	h m 1 7.7	° 80 57	h m 5 23.8	+ 1.3147	+ 1.2740	+ 8.05	+ 0.9058
	2	0.7534	3.039	3.044	16 58	1 7.9	79 53	5 19.5	1.3163	1.2742	8.03	0.9047
	3	0.7561	3.050	3.049	16 59	1 7.9	78 49	5 15.3	1.3180	1.2744	8.01	0.9034
	4	0.7588	3.061	3.055	16 57	1 7.8	77 45	5 11.0	1.3196	1.2747	7.98	0.9020
	5	0.7616	3.072	3.060	16 52	1 7.5	76 41	5 6.7	1.3209	1.2750	7.95	0.9004
	6	0.7643	+ 3.081	+ 3.065	16 47	1 7.1	75 37	5 2.5	+ 1.3218	+ 1.2753	+ 7.92	+ 0.8987
	7	0.7670	3.087	3.070	16 41	1 6.7	74 33	4 58.2	1.3225	1.2756	7.89	0.8969
	8	0.7698	3.090	3.076	16 37	1 6.5	73 29	4 53.9	1.3228	1.2759	7.85	0.8949
	9	0.7725	3.091	3.081	16 34	1 6.3	72 25	4 49.7	1.3228	1.2763	7.81	0.8928
	10	0.7753	3.090	3.087	16 35	1 6.3	71 22	4 45.5	1.3228	1.2767	7.77	0.8906
	11	0.7780	+ 3.090	+ 3.092	16 39	1 6.6	70 18	4 41.2	+ 1.3229	+ 1.2771	+ 7.73	+ 0.8882
	12	0.7807	3.090	3.098	16 46	1 7.1	69 15	4 37.0	1.3231	1.2775	7.69	0.8856
	13	0.7835	3.092	3.104	16 54	1 7.6	68 11	4 32.7	1.3237	1.2779	7.64	0.8830
	14	0.7862	3.097	3.109	17 1	1 8.1	67 8	4 28.5	1.3247	1.2784	7.59	0.8801
	15	0.7889	3.104	3.115	17 8	1 8.5	66 4	4 24.3	1.3259	1.2789	7.54	0.8771
h (1.0)	16	0.7917	+ 3.113	+ 3.121	17 12	1 8.8	65 1	4 20.1	+ 1.3274	+ 1.2793	+ 7.48	+ 0.8740
	17	0.7944	3.124	3.127	17 13	1 8.9	63 58	4 15.9	1.3290	1.2798	7.43	0.8707
	18	0.7972	3.134	3.133	17 11	1 8.7	62 55	4 11.7	1.3304	1.2804	7.37	0.8673
	19	0.7999	3.144	3.139	17 7	1 8.5	61 53	4 7.5	1.3316	1.2809	7.31	0.8636
	20	0.8026	3.153	3.145	17 2	1 8.1	60 50	4 3.3	1.3326	1.2814	7.24	0.8598
	21	0.8054	+ 3.159	+ 3.152	16 58	1 7.9	59 47	3 59.1	+ 1.3332	+ 1.2820	+ 7.17	+ 0.8559
	22	0.8081	3.163	3.158	16 55	1 7.7	58 45	3 55.0	1.3336	1.2826	7.11	0.8518
	23	0.8108	3.165	3.164	16 54	1 7.6	57 42	3 50.8	1.3339	1.2832	7.04	0.8475
	24	0.8136	3.166	3.171	16 56	1 7.7	56 40	3 46.7	1.3342	1.2838	6.97	0.8430
	25	0.8163	3.168	3.177	17 1	1 8.1	55 38	3 42.5	1.3346	1.2844	6.89	0.8384
	26	0.8191	+ 3.172	+ 3.184	17 8	1 8.5	54 36	3 38.4	+ 1.3354	+ 1.2850	+ 6.82	+ 0.8335
	27	0.8218	3.178	3.191	17 16	1 9.1	53 35	3 34.3	1.3365	1.2856	6.74	0.8285
	28	0.8245	3.186	3.197	17 23	1 9.5	52 33	3 30.2	1.3379	1.2862	6.66	0.8233
	29	0.8273	3.197	3.204	17 28	1 9.9	51 32	3 26.1	1.3396	1.2869	6.58	0.8179
	30	0.8300	3.210	3.211	17 31	1 10.1	50 30	3 22.0	1.3414	1.2875	6.49	0.8122
h (2.0)	31	0.8327	+ 3.223	+ 3.218	17 31	1 10.1	49 29	3 17.9	+ 1.3433	+ 1.2882	+ 6.40	+ 0.8064
	Nov. 1	0.8355	3.236	3.226	17 28	1 9.9	48 28	3 13.9	1.3449	1.2888	6.31	0.8003
	2	0.8382	3.248	3.233	17 24	1 9.6	47 27	3 9.8	1.3463	1.2895	6.22	0.7940
	3	0.8410	3.257	3.240	17 19	1 9.3	46 26	3 5.7	1.3473	1.2901	6.13	0.7875
	4	0.8437	3.263	3.248	17 15	1 9.0	45 26	3 1.7	1.3480	1.2908	6.04	0.7808
	5	0.8464	+ 3.267	+ 3.255	17 13	1 8.9	44 25	2 57.7	+ 1.3484	+ 1.2914	+ 5.94	+ 0.7738
	6	0.8492	3.269	3.263	17 14	1 8.9	43 25	2 53.7	1.3487	1.2921	5.84	0.7665
	7	0.8519	3.270	3.271	17 17	1 9.1	42 25	2 49.7	1.3490	1.2927	5.75	0.7590
	8	0.8547	3.272	3.279	17 23	1 9.5	41 25	2 45.7	1.3495	1.2934	5.64	0.7512
	9	0.8574	3.276	3.287	17 30	1 10.0	40 25	2 41.7	1.3503	1.2940	5.54	0.7432
	10	0.8601	+ 3.282	+ 3.295	17 38	1 10.5	39 25	2 37.7	+ 1.3514	+ 1.2947	+ 5.43	+ 0.7348
	11	0.8629	3.291	3.303	17 45	1 11.0	38 26	2 33.7	1.3528	1.2953	5.32	0.7261
	12	0.8656	3.302	3.312	17 49	1 11.3	37 27	2 29.8	1.3545	1.2960	5.21	0.7172
	13	0.8683	3.315	3.319	17 51	1 11.4	36 27	2 25.8	1.3563	1.2966	5.10	0.7078
	14	0.8711	3.328	3.328	17 50	1 11.3	35 28	2 21.9	1.3580	1.2972	4.99	0.6982
h (3.0)	15	0.8738	+ 3.341	+ 3.336	17 47	1 11.1	34 29	2 17.9	+ 1.3595	+ 1.2979	+ 4.88	+ 0.6882
	16	0.8766	+ 3.353	+ 3.345	17 42	1 10.8	33 30	2 14.0	+ 1.3608	+ 1.2985	+ 4.76	+ 0.6777

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f		f'		G		H		Log g .	Log h .	i	Log i .
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
		s	s	° ' "	h m	° ' "	h m						
Nov.	16	0.8766	+ 3.353	+ 3.345	17 42	1 10.8	33 30	2 14.0	+ 1.3608	+ 1.2985	+ 4.76	+ 0.6777	
	17	0.8793	3.362	3.354	17 37	1 10.5	32 32	2 10.1	1.3618	1.2990	4.64	0.6670	
	18	0.8820	3.369	3.362	17 33	1 10.2	31 33	2 6.2	1.3625	1.2997	4.53	0.6557	
	h 19	0.8848	3.374	3.371	17 31	1 10.1	30 35	2 2.3	1.3631	1.3003	4.41	0.6441	
	(4.0) 20	0.8875	3.378	3.380	17 32	1 10.2	29 37	1 58.5	1.3636	1.3008	4.29	0.6319	
	21	0.8902	+ 3.382	+ 3.389	17 35	1 10.3	28 39	1 54.6	+ 1.3642	+ 1.3014	+ 4.16	+ 0.6193	
	22	0.8930	3.387	3.398	17 40	1 10.7	27 41	1 50.7	1.3651	1.3019	4.04	0.6062	
	23	0.8957	3.395	3.408	17 46	1 11.1	26 43	1 46.9	1.3663	1.3025	3.91	0.5925	
	24	0.8985	3.405	3.417	17 52	1 11.5	25 45	1 43.0	1.3679	1.3030	3.79	0.5782	
	25	0.9012	3.418	3.427	17 56	1 11.7	24 47	1 39.1	1.3697	1.3035	3.66	0.5633	
	26	0.9039	+ 3.432	+ 3.436	17 58	1 11.9	23 50	1 35.3	+ 1.3717	+ 1.3040	+ 3.53	+ 0.5479	
	27	0.9067	3.448	3.446	17 57	1 11.8	22 53	1 31.5	1.3736	1.3045	3.40	0.5315	
	28	0.9094	3.464	3.455	17 54	1 11.6	21 56	1 27.7	1.3755	1.3050	3.27	0.5145	
	29	0.9121	3.479	3.465	17 50	1 11.3	20 58	1 23.9	1.3771	1.3054	3.14	0.4965	
	30	0.9149	3.491	3.475	17 45	1 11.0	20 1	1 20.1	1.3784	1.3059	3.00	0.4777	
Dec.	1	0.9176	+ 3.500	+ 3.485	17 38	1 10.5	19 4	1 16.3	+ 1.3793	+ 1.3063	+ 2.87	+ 0.4578	
	2	0.9204	3.507	3.495	17 33	1 10.2	18 7	1 12.5	1.3801	1.3067	2.73	0.4368	
	3	0.9231	3.512	3.505	17 31	1 10.1	17 11	1 8.7	1.3806	1.3070	2.60	0.4147	
	4	0.9258	3.516	3.515	17 32	1 10.1	16 14	1 4.9	1.3811	1.3074	2.46	0.3911	
	h 5	0.9286	3.520	3.525	17 35	1 10.3	15 17	1 1.1	1.3817	1.3078	2.32	0.3661	
	(5.0) 6	0.9313	+ 3.526	+ 3.535	17 39	1 10.6	14 21	0 57.4	+ 1.3826	+ 1.3081	+ 2.18	+ 0.3394	
	7	0.9341	3.534	3.545	17 44	1 10.9	13 24	0 53.6	1.3837	1.3084	2.04	0.3108	
	8	0.9368	3.543	3.555	17 49	1 11.3	12 28	0 49.9	1.3851	1.3087	1.90	0.2800	
	9	0.9395	3.556	3.565	17 52	1 11.5	11 31	0 46.1	1.3868	1.3090	1.76	0.2467	
	10	0.9423	3.570	3.576	17 52	1 11.5	10 35	0 42.3	1.3886	1.3092	1.62	0.2105	
	11	0.9450	+ 3.585	+ 3.586	17 50	1 11.3	9 37	0 38.5	+ 1.3903	+ 1.3094	+ 1.48	+ 0.1708	
	12	0.9477	3.600	3.597	17 46	1 11.1	8 42	0 34.8	1.3919	1.3097	1.34	0.1270	
	13	0.9505	3.614	3.607	17 39	1 10.6	7 46	0 31.1	1.3933	1.3098	1.20	0.0780	
	14	0.9532	3.626	3.618	17 32	1 10.1	6 50	0 27.3	1.3945	1.3100	1.05	0.0227	
	15	0.9560	3.635	3.628	17 26	1 9.7	5 54	0 23.6	1.3953	1.3102	0.91	9.9592	
	16	0.9587	+ 3.642	+ 3.639	17 21	1 9.4	4 57	0 19.8	+ 1.3960	+ 1.3103	+ 0.77	+ 9.8846	
	17	0.9614	3.648	3.649	17 19	1 9.3	4 2	0 16.1	1.3966	1.3104	0.62	9.7942	
	18	0.9642	3.653	3.660	17 19	1 9.3	3 6	0 12.4	1.3972	1.3105	0.48	9.6797	
	19	0.9669	3.660	3.670	17 18	1 9.2	2 10	0 8.7	1.3979	1.3105	0.33	9.5235	
	h 20	0.9696	3.668	3.681	17 21	1 9.4	1 13	0 4.9	1.3991	1.3106	0.19	9.2771	
	(6.0) 21	0.9724	+ 3.678	+ 3.692	17 26	1 9.7	0 17	0 1.1	+ 1.4005	+ 1.3106	+ 0.04	+ 8.6493	
	22	0.9751	3.692	3.702	17 29	1 9.9	359 21	23 57.4	1.4021	1.3106	- 0.10	- 8.9996	
	23	0.9779	3.707	3.713	17 29	1 9.9	358 25	23 53.7	1.4039	1.3106	0.24	9.3884	
	24	0.9806	3.724	3.723	17 27	1 9.8	357 29	23 49.9	1.4058	1.3105	0.39	9.5901	
	25	0.9833	3.741	3.734	17 23	1 9.5	356 33	23 46.2	1.4076	1.3104	0.53	9.7272	
	26	0.9861	+ 3.756	+ 3.745	17 16	1 9.1	355 37	23 42.5	+ 1.4092	+ 1.3103	- 0.68	- 9.8313	
	27	0.9888	3.770	3.755	17 8	1 8.5	354 41	23 38.7	1.4105	1.3102	0.82	9.9149	
	28	0.9915	3.781	3.766	17 0	1 8.0	353 44	23 34.9	1.4115	1.3101	0.97	9.9850	
	29	0.9943	3.790	3.776	16 54	1 7.6	352 48	23 31.2	1.4122	1.3100	1.11	0.0452	
	30	0.9970	3.796	3.786	16 49	1 7.3	351 52	23 27.5	1.4127	1.3098	1.25	0.0979	
	31	0.9998	+ 3.801	+ 3.797	16 46	1 7.1	350 55	23 23.7	+ 1.4131	+ 1.3096	- 1.39	- 0.1447	
	32	1.0025	+ 3.805	+ 3.807	16 46	1 7.1	349 59	23 19.9	+ 1.4136	+ 1.3093	- 1.54	- 0.1869	

BESSELIAN AND INDEPENDENT STAR-NUMBERS, 1901. 303

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON SIDEREAL TWELVE HOURS.

Mean Solar Date.	Log <i>A'</i> .	Log <i>B'</i> .	Log <i>C</i> .	Log <i>D</i> .	<i>f'</i>	<i>G'</i>	<i>H</i>	Log <i>g'</i> .	Log <i>h</i> .	Log <i>i</i> .
					^s	^o [']	^o [']			
Jan. 0.72	+ 9.4910	+ 0.7091	- 0.5277	+ 1.3035	+ 0.953	39 29	350 29	+ 0.9056	+ 1.3095	- 0.1650
10.69	9.5360	0.7069	0.8178	1.2822	1.059	36 28	341 3	0.9329	1.3063	0.4551
20.67	9.5745	0.7002	0.9808	1.2451	1.157	33 40	331 27	0.9565	1.3014	0.6181
30.64	9.6068	0.6905	1.0884	1.1897	1.246	31 10	321 37	0.9767	1.2954	0.7256
Feb. 9.61	9.6338	0.6796	1.1630	1.1103	1.325	29 1	311 32	0.9941	1.2888	0.8009
19.59	+ 9.6560	+ 0.6698	- 1.2149	+ 0.9964	+ 1.395	27 15	301 10	+ 1.0092	+ 1.2825	- 0.8522
Mar. 1.56	9.6748	0.6632	1.2488	0.8235	1.456	25 54	290 34	1.0230	1.2774	0.8861
11.53	9.6912	0.6614	1.2677	+ 0.5059	1.511	24 58	279 49	1.0358	1.2741	0.9050
21.50	9.7059	0.6655	1.2731	- 9.5060	1.564	24 26	269 1	1.0489	1.2731	0.9104
31.48	9.7203	0.6755	1.2654	0.5819	1.617	24 13	258 17	1.0625	1.2745	0.9027
Apr. 10.45	+ 9.7350	+ 0.6906	- 1.2446	- 0.8564	+ 1.672	24 14	247 45	+ 1.0772	+ 1.2781	- 0.8819
20.42	9.7507	0.7091	1.2092	1.0139	1.733	24 23	237 29	1.0935	1.2833	0.8465
30.39	9.7676	0.7294	1.1572	1.1189	1.802	24 33	227 31	1.1109	1.2894	0.7945
May 10.37	9.7859	0.7494	1.0840	1.1928	1.879	24 38	217 54	1.1295	1.2957	0.7213
20.34	9.8052	0.7678	0.9813	1.2449	1.965	24 35	208 35	1.1486	1.3014	0.6186
30.31	+ 9.8252	+ 0.7832	- 0.8301	- 1.2804	+ 2.057	24 22	199 32	+ 1.1678	+ 1.3060	- 0.4674
June 9.29	9.8455	0.7950	0.5757	1.3017	2.156	23 57	190 39	1.1867	1.3091	0.2130
19.26	9.8655	0.8027	- 9.8310	1.3103	2.257	23 21	181 53	1.2047	1.3105	- 9.4683
29.23	9.8846	0.8061	+ 0.3854	1.3069	2.358	22 36	173 10	1.2215	1.3100	+ 0.0227
July 9.20	9.9026	0.8056	0.7378	1.2913	2.458	21 45	164 23	1.2368	1.3076	0.3751
19.18	+ 9.9191	+ 0.8017	+ 0.9221	- 1.2624	+ 2.553	20 50	155 27	+ 1.2507	+ 1.3036	+ 0.5594
29.15	9.9338	0.7951	1.0422	1.2182	2.641	19 55	146 20	1.2627	1.2986	0.6795
Aug. 8.12	9.9468	0.7871	1.1266	1.1559	2.721	19 3	136 56	1.2733	1.2923	0.7639
18.09	9.9580	0.7789	1.1871	1.0682	2.792	18 16	127 14	1.2827	1.2862	0.8244
28.07	9.9678	0.7721	1.2294	0.9409	2.856	17 37	117 14	1.2909	1.2804	0.8669
Sept. 7.04	+ 9.9764	+ 0.7679	+ 1.2568	- 0.7403	+ 2.913	17 8	106 56	+ 1.2983	+ 1.2761	+ 0.8941
17.01	9.9842	0.7677	1.2709	- 0.3220	2.966	16 51	96 25	1.3054	1.2735	0.9082
26.98	9.9915	0.7719	1.2721	+ 0.1400	3.016	16 44	85 47	1.3124	1.2733	0.9094
Oct. 6.95	9.9989	0.7807	1.2606	0.6848	3.067	16 47	75 8	1.3200	1.2754	0.8979
16.93	0.0068	0.7933	1.2353	0.9124	3.124	16 57	64 34	1.3283	1.2796	0.8726
26.90	+ 0.0155	+ 0.8085	+ 1.1942	+ 1.0525	+ 3.187	17 12	54 11	+ 1.3375	+ 1.2852	+ 0.8315
Nov. 5.87	0.0251	0.8249	1.1337	1.1482	3.258	17 27	44 3	1.3478	1.2917	0.7710
15.85	0.0358	0.8409	1.0472	1.2159	3.339	17 39	34 9	1.3589	1.2981	0.6845
25.82	0.0474	0.8552	0.9212	1.2627	3.430	17 46	24 29	1.3708	1.3037	0.5585
Dec. 5.79	0.0597	0.8665	0.7212	1.2928	3.528	17 44	15 1	1.3821	1.3079	0.3585
15.76	+ 0.0722	+ 0.8742	+ 0.3033	+ 1.3081	+ 3.631	17 33	5 39	+ 1.3950	+ 1.3102	+ 9.9406
25.74	0.0846	0.8778	- 0.1171	1.3095	3.736	17 13	356 20	1.4067	1.3104	- 9.7544
35.71	+ 0.0966	+ 0.8778	- 0.6618	+ 1.2972	+ 3.844	16 45	346 58	+ 1.4180	+ 1.3085	- 0.2991

$E = + 0^s.002.$

The above numbers are those used in computing the apparent places of the fixed stars, given on pages 324-399, from the mean places, given on pages 304-311. In order to render exact interpolation possible through intervals of ten days, all short period terms have been omitted.

MEAN PLACES FOR 1901.0. (January 0^d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s		"	"	"	
33 Piscium	4.7	0	0	16.111	+ 3.0716	6	15	40.95	+ 20.137
<i>a</i> Andromedæ	2.1	0	3	16.123	3.0934	+ 28	32	37.89	19.882
<i>β</i> Cassiopeiæ	2.4	0	3	53.519	3.1774	+ 5 ^b	36	13.48	19.863
22 Andromedæ	4.9	0	5	10.394	3.1051	+ 45	31	16.88	20.037
<i>γ</i> Pegasi (<i>Algenib</i>)	2.8	0	8	8.220	3.0850	+ 14	37	59.49	20.024
<i>σ</i> Andromedæ	4.4	0	13	9.233	+ 3.1241	+ 36	14	10.91	+ 19.967
<i>ι</i> Ceti	3.6	0	14	23.045	3.0572	9	22	21.77	19.978
44 Piscium	5.8	0	20	19.650	3.0738	+ 1	23	29.14	19.945
<i>ζ</i> Hydri	2.8	0	20	33.285	3.2206	77	48	42.58	20.284
12 Ceti	6.0	0	24	59.202	3.0620	+ 30	15.41	19.927	
<i>π</i> Andromedæ	4.4	0	31	35.479	+ 3.1943	+ 33	10	27.84	+ 19.857
<i>a</i> Cassiopeiæ (<i>var.</i>)	2.3	0	34	53.136	3.3790	+ 55	59	39.98	19.783
<i>β</i> Ceti	2.2	0	38	37.239	3.0132	18	31	47.62	19.804
21 Cassiopeiæ	5.7	0	39	6.177	3.8827	+ 74	26	49.11	19.729
<i>ο</i> Cassiopeiæ	4.7	0	39	12.354	3.3256	+ 47	44	33.44	19.748
<i>δ</i> Piscium	4.8	0	43	32.717	+ 3.1090	+ 7	2	46.83	+ 19.642
<i>γ</i> Cassiopeiæ	2.3	0	50	43.733	3.5878	+ 60	10	50.55	19.553
<i>μ</i> Andromedæ	4.0	0	51	15.352	3.3168	+ 37	57	44.71	19.578
43 Cephei (H.)	4.6	0	55	8.869	7.4057	+ 85	43	34.21	19.465
<i>ε</i> Piscium	4.3	0	57	48.259	3.1100	+ 7	21	25.89	19.438
<i>β</i> Andromedæ	2.2	1	4	11.178	+ 3.3467	+ 35	5	44.66	+ 19.149
<i>κ</i> Tucanæ	4.9	1	12	24.659	2.0421	69	24	7.44	19.144
<i>f</i> Piscium	5.1	1	12	41.514	3.0916	+ 3	5	35.50	19.021
<i>θ</i> ¹ Ceti	3.6	1	19	4.482	2.9975	8	41	38.89	18.651
<i>a</i> Ursæ Minoris (<i>Polaris</i>)	2.2	1	22	58.51*	25.4235	+ 88	46	45.37	18.751
38 Cassiopeiæ	5.9	1	23	51.308	+ 4.3950	+ 69	45	18.88	+ 18.648
<i>η</i> Piscium	3.7	1	26	11.056	3.2039	+ 14	50	8.00	18.643
<i>υ</i> Andromedæ	4.2	1	30	59.023	3.5049	+ 40	54	37.36	18.111
<i>π</i> Piscium	5.5	1	31	50.938	3.1748	+ 11	38	6.70	18.493
<i>a</i> Eridani (<i>Achernar</i>)	0.4	1	34	1.657	2.2382	57	44	22.97	18.342
<i>υ</i> Piscium	4.6	1	36	16.710	+ 3.1184	+ 4	59	12.29	+ 18.307
<i>ο</i> Piscium	4.4	1	40	9.887	3.1634	+ 8	39	34.40	18.207
<i>ξ</i> Ceti	3.6	1	46	34.425	2.9597	10	49	26.43	17.891
<i>β</i> Arietis	2.8	1	49	10.142	3.3058	+ 20	19	27.07	17.705
50 Cassiopeiæ	4.1	1	54	58.233	5.0344	+ 71	56	32.42	17.597
<i>γ</i> Andromedæ	2.2	1	57	49.162	+ 3.6657	+ 41	51	17.33	+ 17.405
<i>a</i> Arietis	2.1	2	1	35.431	3.3732	+ 22	59	39.97	17.147
<i>β</i> Trianguli	3.1	2	3	39.011	3.5572	+ 34	31	8.86	17.155
<i>ξ</i> ¹ Ceti	4.5	2	7	45.090	3.1753	+ 8	22	56.48	16.996
<i>γ</i> Trianguli	4.3	2	11	25.584	3.5543	+ 33	23	21.99	16.788
67 Ceti	5.6	2	12	2.688	+ 2.9899	6	52	41.92	+ 16.700
<i>δ</i> Hydri	4.2	2	19	59.111	1.0543	69	6	35.43	16.442
<i>ι</i> Cassiopeiæ	4.6	2	20	54.190	4.8844	+ 66	57	26.86	16.386
<i>ξ</i> ² Ceti	4.5	2	22	53.646	+ 3.1848	+ 8	0	59.26	16.268
<i>μ</i> Hydri	5.3	2	33	45.574	1.3858	79	32	28.89	15.665
<i>δ</i> Ceti	4.1	2	34	24.445	+ 3.0720	0	5	54.12	+ 15.671
<i>θ</i> Persei	4.2	2	37	26.077	4.0761	+ 48	48	35.64	15.413
<i>γ</i> Ceti	3.6	2	38	10.191	+ 3.1046	+ 2	49	7.40	+ 15.308

MEAN PLACES FOR 1901.0. (January 0^d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	'	"	"
♈ Arietis	5.5	2	46	1.514	+ 3.3059	+ 14	40	27.07	+ 14.978
47 Cephei (H.)	5.7	2	52	54.482	7.7834	+ 79	1	39.66	14.617
♊ Arietis	4.6	2	53	32.947	3.4228	+ 20	56	40.18	14.559
♋ Ceti	2.6	2	57	6.201	3.1318	+ 3	42	5.32	14.275
♊ Persei (<i>Algol</i>) (<i>var.</i>)	2.3	3	1	43.463	3.8885	+ 40	34	27.89	14.066
48 Cephei (H.)	5.5	3	7	44.695	+ 7.4507	+ 77	22	16.32	+ 13.633
♈ Arietis	4.8	3	9	12.549	3.4412	+ 20	40	39.54	13.512
♋ Persei	1.9	3	17	15.077	+ 4.2623	+ 49	30	32.40	13.041
♈ Hydri	5.7	3	18	25.075	- 1.5803	- 77	45	0.35	13.032
♊ Tauri	4.3	3	25	24.372	+ 3.3072	+ 12	35	51.24	12.522
♊ Eridani	3.7	3	28	15.943	+ 2.8244	- 9	47	35.38	+ 12.349
♊ Persei	3.1	3	35	52.385	4.2542	+ 47	28	16.23	11.756
♊ Camelopardalis	4.6	3	39	54.070	6.2617	+ 71	1	38.32	11.449
♊ Tauri	3.1	3	41	35.874	3.5591	+ 23	47	56.93	11.334
♊ Persei	3.0	3	47	54.408	+ 3.7625	+ 31	35	23.25	10.911
♊ Hydri	3.3	3	48	46.060	- 0.9802	- 74	32	32.75	+ 10.979
♊ Persei	3.0	3	51	12.506	+ 4.0152	+ 39	43	26.39	10.655
♊ Eridani	3.0	3	53	24.619	2.7978	- 13	47	24.00	10.408
A ¹ Tauri	4.6	3	58	50.461	3.5411	+ 21	48	41.69	10.053
♋ Persei	4.3	4	1	28.326	4.3420	+ 47	26	54.02	9.880
♊ Eridani	4.2	4	7	1.957	+ 2.9265	- 7	5	43.92	+ 9.572
♊ Tauri	3.8	4	14	9.503	3.4100	+ 15	23	19.39	8.907
♊ Tauri	3.6	4	22	50.086	+ 3.4990	+ 18	57	39.62	8.213
♊ Mensæ	5.6	4	24	39.611	- 4.1867	- 80	26	45.28	8.173
m Persei	6.0	4	26	26.839	+ 4.2115	+ 42	51	9.34	7.962
♋ Tauri (<i>Aldebaran</i>)	1.0	4	30	14.328	+ 3.4385	+ 16	18	37.50	+ 7.463
♋ Tauri	4.5	4	36	18.126	3.5969	+ 22	46	1.73	7.140
♋ Camelopardalis	4.4	4	44	12.328	5.9387	+ 66	10	29.09	6.515
♊ Tauri	5.2	4	45	34.898	3.5062	+ 18	40	17.46	6.361
♊ Aurigæ	2.8	4	50	32.708	3.9019	+ 33	0	34.21	5.961
♊ Aurigæ	3.9	4	55	33.386	+ 4.1871	+ 40	55	53.53	+ 5.541
11 Orionis	4.7	4	58	54.685	3.4256	+ 15	15	59.01	5.245
♊ Eridani	2.9	5	2	58.965	2.9486	- 5	12	51.28	4.862
♋ Aurigæ (<i>Capella</i>)	0.1	5	9	22.461	4.4265	+ 45	53	51.06	3.964
♊ Orionis (<i>Rigel</i>)	0.3	5	9	46.779	2.8817	- 8	18	57.04	4.358
♋ Orionis	3.8	5	12	47.955	+ 2.9120	- 6	57	4.45	+ 4.095
♊ Tauri	1.8	5	20	1.982	3.7902	+ 28	31	26.39	3.302
♋ Aurigæ	5.0	5	26	17.015	3.9029	+ 32	7	8.24	2.925
Groombridge 966	6.4	5	26	28.989	7.9992	+ 74	58	42.89	2.938
♊ Orionis (<i>var.</i>)	2.3	5	26	56.913	3.0637	- 0	22	20.18	2.879
♋ Leporis	2.7	5	28	21.828	+ 2.6453	- 17	53	34.89	+ 2.758
Groombridge 944	6.4	5	30	13.034	18.6961	+ 85	8	52.21	2.594
♊ Orionis	1.8	5	31	11.382	3.0431	- 1	15	53.87	2.515
♋ Columbæ	2.7	5	36	3.852	2.1721	- 34	7	36.42	2.052
♋ Orionis	2.3	5	43	3.670	2.8445	- 9	42	16.76	1.477
♊ Doradus	4.4	5	44	35.686	+ 0.1010	- 65	46	21.51	+ 1.346
♋ Aurigæ	4.1	5	44	37.686	4.1567	+ 39	7	10.75	1.357
♋ Orionis (<i>var.</i>)	0.9	5	49	48.720	+ 3.2475	+ 7	23	19.52	+ 0.900

MEAN PLACES FOR 1901.0. (January ⁰d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	'	"	"
β Aurigæ	2.0	5	52	16.038	+ 4.4013	+ 44	56	15.31	+ 0.670
θ Aurigæ	2.9	5	52	58.221	4.0913	+ 37	12	20.94	+ 0.524
ν Orionis	4.5	6	1	55.189	3.4262	+ 14	46	49.52	- 0.193
22 Camelopardalis (H.)	4.7	6	7	56.319	6.6200	+ 69	21	17.63	0.808
γ Geminorum	3.5	6	8	54.136	3.6226	+ 22	32	8.31	0.795
μ Geminorum	3.2	6	16	58.294	+ 3.6308	+ 22	33	52.54	- 1.597
ζ^1 Aurigæ	5.1	6	17	16.518	4.6267	+ 49	20	19.09	1.513
α Argûs (<i>Canopus</i>)	-0.8	6	21	45.256	1.3318	- 52	38	29.54	1.891
ν Geminorum	4.2	6	23	5.097	3.5631	+ 20	16	29.92	2.032
γ Geminorum	2.0	6	31	59.589	3.4673	+ 16	29	2.11	2.837
ϵ Geminorum	3.2	6	37	50.500	+ 3.6934	+ 25	13	45.64	- 3.313
ζ^5 Aurigæ	5.4	6	39	36.334	4.3312	+ 43	40	34.09	3.287
* α Canis Majoris (<i>Sirius</i>)	-1.4	6	40	47.138	2.6436	- 16	34	48.81	4.756
θ Geminorum	3.7	6	46	15.907	+ 3.9592	+ 34	4	50.85	4.070
τ Mensæ	5.6	6	48	17.467	- 4.9204	- 80	42	33.28	4.111
51 Cephei (H.)	5.3	6	54	13.62*	+ 29.6218	+ 87	12	15.82	4.735
ϵ Canis Majoris	1.5	6	54	44.099	2.3573	- 28	50	13.84	4.740
τ Geminorum (<i>var.</i>)	4.0	6	58	14.272	3.5614	+ 20	42	56.44	5.047
δ Canis Majoris	1.9	7	4	21.922	2.4380	- 26	14	9.09	5.553
63 Aurigæ	5.2	7	4	50.851	+ 4.1348	+ 39	28	56.02	5.600
γ^2 Volantis (<i>var.</i>)	3.9	7	9	35.268	- 0.4966	- 70	20	17.13	5.916
25 Camelopardalis (H.)	5.3	7	10	16.575	+ 12.8998	+ 82	36	9.97	6.098
δ Geminorum	3.5	7	14	12.695	3.5875	+ 22	9	53.27	6.393
Piazzii vii, 67	5.7	7	20	35.029	6.2870	+ 68	40	5.18	6.949
β Canis Minoris	3.1	7	21	46.958	3.2560	+ 8	29	20.28	7.050
α^2 Geminorum (<i>Castor</i>)	1.9	7	28	17.058	+ 3.8351	+ 32	6	21.56	7.615
* α Canis Min. (<i>Procyon</i>)	0.5	7	34	7.197	3.1429	+ 5	28	43.55	9.041
β Geminorum (<i>Pollux</i>)	1.2	7	39	15.545	3.6776	+ 28	15	55.74	8.469
φ Geminorum	5.0	7	47	26.397	3.6785	+ 27	1	20.10	9.084
26 Lyncis	5.8	7	47	30.401	4.3858	+ 47	49	17.20	9.068
Groombridge 1374	5.6	7	48	21.206	+ 7.2701	+ 74	10	57.34	9.165
ω^1 Cancrî	6.0	7	54	56.520	3.6358	+ 25	39	50.30	9.642
3 Ursæ Majoris (H.)	5.5	8	2	57.937	6.0288	+ 68	45	56.70	10.242
15 Argûs (ρ)	3.1	8	3	19.664	2.5545	- 24	1	7.23	10.222
ζ^1 Cancrî	4.8	8	6	32.119	3.4460	+ 17	56	47.57	10.643
β Cancrî	3.8	8	11	8.818	+ 3.2567	+ 9	29	26.96	- 10.908
30 Monocerotis	3.9	8	20	42.871	+ 3.0000	3	34	59.87	11.569
θ Chamæleontis	4.6	8	23	36.917	- 1.7240	77	9	54.66	11.739
γ Cancrî	5.4	8	26	59.106	+ 3.4762	+ 20	46	39.41	12.049
σ Hydræ	4.5	8	33	35.026	3.1391	+ 3	41	21.07	12.464
γ Cancrî	4.9	8	37	33.511	+ 3.4789	+ 21	49	28.90	- 12.765
ϵ Hydræ	3.5	8	41	32.058	3.1807	+ 6	46	55.98	13.037
σ^2 Cancrî (<i>mean</i>)	5.5	8	48	12.382	3.6710	+ 30	57	16.18	13.449
ι Ursæ Majoris	3.3	8	52	25.952	4.1289	+ 48	25	49.96	13.949
σ^2 Ursæ Majoris	5.0	9	1	41.360	5.3408	+ 67	32	11.75	14.346
κ Cancrî	5.1	9	2	23.172	+ 3.2540	+ 11	4	0.26	- 14.335
θ Hydræ	4.0	9	9	12.876	3.1244	+ 2	43	55.67	15.045
β Argûs	2.0	9	12	6.910	+ 0.6750	- 69	18	33.78	- 14.811

*Periodic corrections given in the Appendix are still to be applied to the positions of Sirius and Procyon.

MEAN PLACES FOR 1901.0. (January 0^d.34², Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	'	"	"
ε Argûs	2.6	9	14	26.323	+ 1.6044	- 58	51	34.84	- 15.033
α Lyncis	3.3	9	15	1.563	3.6672	+ 34	48	40.82	15.061
α Hydræ	2.1	9	22	43.371	2.9488	- 8	13	45.48	15.476
1 Draconis (H.)	4.5	9	23	0.168	8.9086	+ 81	45	51.36	15.552
δ Ursæ Majoris	4.8	9	25	44.253	5.3836	+ 70	15	56.32	15.604
θ Ursæ Majoris	3.2	9	26	14.376	+ 4.0380	+ 52	7	43.49	- 16.246
10 Leonis Minoris	4.7	9	28	9.661	3.6892	+ 36	50	14.20	15.827
α Leonis	3.8	9	35	52.081	+ 3.2063	+ 10	20	34.51	16.245
ξ Chamæleontis	5.2	9	36	48.479	- 1.6093	- 80	29	47.16	16.241
ε Leonis	3.2	9	40	14.001	+ 3.4135	+ 24	13	48.66	16.455
μ Leonis	4.0	9	47	8.063	+ 3.4198	+ 26	28	24.07	- 16.826
19 Leonis Minoris	5.2	9	51	37.403	3.6900	+ 41	31	38.09	17.005
π Leonis	5.0	9	54	58.956	3.1733	+ 8	31	9.62	17.164
α Leonis (<i>Regulus</i>) . . .	1.3	10	3	6.041	3.1996	+ 12	27	4.22	17.497
32 Ursæ Majoris	5.7	10	10	51.036	4.4092	+ 65	36	8.46	17.828
λ Ursæ Majoris	3.6	10	11	7.764	+ 3.6364	+ 43	24	32.11	- 17.866
γ ¹ Leonis	2.5	10	14	30.939	3.3137	+ 20	20	32.77	18.112
μ Hydræ	4.1	10	21	18.132	2.9000	- 16	19	50.72	18.295
ξ Leonis Minoris	4.3	10	22	9.683	3.4832	+ 37	12	52.43	18.360
α Antliæ	4.5	10	22	37.246	2.7410	- 30	33	49.76	18.287
9 Draconis (H.)	5.0	10	26	41.538	+ 5.2224	+ 76	13	23.09	- 18.418
α Leonis	4.0	10	27	35.966	3.1627	+ 9	48	58.24	18.443
41 Leonis Minoris	5.1	10	38	2.086	3.2694	+ 23	42	24.42	18.769
γ Argûs (<i>var.</i>)	1-6	10	41	13.123	2.3177	- 59	9	50.31	18.883
l Leonis	5.3	10	44	3.276	3.1575	+ 11	4	8.67	18.989
ξ ² Chamæleontis	4.7	10	44	51.415	+ 0.6080	- 80	1	4.89	- 18.983
46 Leonis Minoris	3.9	10	47	46.632	3.3671	+ 34	44	55.37	19.342
Groombridge 1706	6.3	10	52	2.736	4.9314	+ 78	18	2.11	19.207
α Ursæ Majoris	2.0	10	57	37.398	+ 3.7398	+ 62	17	7.95	19.380
γ Octantis	6.1	11	0	0.65*	- 0.3088	- 84	3	40.73	19.369
φ ³ Leonis	6.2	11	1	51.263	+ 3.0616	+ 2	29	35.16	- 19.485
ψ Ursæ Majoris	3.2	11	4	6.041	3.3902	+ 45	2	8.72	19.486
δ Leonis	2.7	11	8	50.687	3.1971	+ 21	3	58.17	19.690
ν Ursæ Majoris	3.7	11	13	8.008	3.2511	+ 33	38	4.50	19.603
δ Crateris	3.9	11	14	23.423	2.9965	- 14	14	33.80	19.456
τ Leonis	5.1	11	22	50.782	+ 3.0860	+ 3	24	5.56	- 19.800
λ Draconis	4.0	11	25	31.983	3.6116	+ 69	52	39.10	19.841
ξ Hydræ	3.8	11	28	7.881	2.9439	- 31	18	35.43	19.908
ν Leonis	4.4	11	31	52.796	3.0715	- 0	16	37.57	19.857
χ Ursæ Majoris	3.9	11	40	49.534	3.1850	+ 48	19	42.08	19.957
β Leonis	2.2	11	44	0.647	+ 3.0634	+ 15	7	31.81	- 20.116
γ Ursæ Majoris	2.4	11	48	37.592	3.1760	+ 54	14	42.77	20.018
π Virginis	4.6	11	55	47.991	3.0745	+ 7	9	58.92	20.075
ο Virginis	4.3	12	0	9.992	3.0574	+ 9	16	58.16	20.015
ε Corvi	3.2	12	5	1.921	3.0792	- 22	4	8.99	20.039
4 Draconis (H.)	5.1	12	7	33.973	+ 2.8644	+ 78	9	58.94	- 20.016
γ Corvi	2.7	12	10	42.809	3.0800	- 16	59	31.74	20.008
2 Canum Venaticorum . .	6.0	12	11	10.077	+ 3.0192	+ 41	12	40.33	- 20.069

MEAN PLACES FOR 1901.0. (January 0^d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s		°	'	"	
β Chamæleontis	4.5	12	12	31.843	+ 3.4213	- 78	45	44.98	- 20.000
6 Ursæ Minoris (B.)	6.2	12	14	23.356	0.2550	+ 88	14	55.25	19.949
η Virginis	4.0	12	14	50.461	3.0689	- 0	6	59.84	20.032
α^1 Crucis	0.9	12	21	5.255	3.3024	- 62	33	1.47	20.001
δ^2 Corvi	3.1	12	24	44.457	3.0995	- 15	57	51.30	20.079
β Canum Venaticorum	4.4	12	29	2.617	+ 2.8591	+ 41	53	43.44	- 19.607
β Corvi	2.8	12	29	11.094	3.1431	- 22	50	57.36	19.946
κ Draconis	3.8	12	29	15.632	2.5850	+ 70	20	2.16	19.873
γ Virginis (<i>mean</i>)	2.9	12	36	38.657	3.0392	- 0	54	23.13	19.787
31 Comæ Berenices	5.1	12	46	52.614	2.9253	+ 28	4	45.85	19.653
32 ² Camelopardalis (H.)	5.2	12	48	23.590	+ 0.4104	+ 83	57	3.80	- 19.585
α Canum Venaticorum	3.2	12	51	23.873	2.8126	+ 38	51	10.79	19.496
δ Muscæ	3.8	12	55	27.232	4.0526	- 71	0	53.45	19.494
ϵ Virginis	3.1	12	57	14.930	2.9865	+ 11	29	28.37	19.410
θ Virginis	4.6	13	4	49.391	3.1021	- 5	0	37.79	19.290
20 Canum Venaticorum	4.7	13	13	6.305	+ 2.6974	+ 41	5	37.77	- 19.020
α Virginis (<i>Spica</i>)	1.1	13	19	58.588	3.1554	- 10	38	40.47	18.871
κ Octantis	5.4	13	24	50.89*	8.8522	- 85	16	43.45	18.712
ζ Virginis	3.6	13	29	38.869	3.0536	- 0	5	23.10	18.493
B. A. C. 4536	5.0	13	30	22.656	2.6830	+ 37	41	22.54	18.512
m Virginis	5.4	13	36	24.388	+ 3.1437	- 8	12	12.55	- 18.266
η Ursæ Majoris	1.9	13	43	38.444	2.3693	+ 49	48	26.24	18.054
η Bootis	2.8	13	49	58.260	2.8568	+ 18	53	38.05	18.146
θ Apodis (<i>var.</i>)	5.0	13	55	40.148	5.6980	- 76	19	8.13	17.576
ρ Centauri	0.7	13	56	50.021	4.1939	- 59	53	43.42	17.531
π Hydræ	3.6	14	0	43.915	+ 3.4062	- 26	12	19.91	- 17.475
α Draconis	3.7	14	1	42.568	1.6237	+ 64	50	56.24	17.275
d Bootis	4.8	14	5	53.147	2.7402	+ 25	33	37.83	17.176
κ Virginis	4.2	14	7	36.818	+ 3.1951	- 9	48	46.73	16.886
4 Ursæ Minoris	4.9	14	9	13.700	- 0.3025	+ 78	0	45.58	16.917
δ Octantis	5.0	14	11	0.867	+ 9.0986	- 83	12	51.99	- 16.873
α Bootis (<i>Arcturus</i>)	0.2	14	11	8.735	2.7352	+ 19	41	51.80	18.856
λ Bootis	4.3	14	12	37.271	2.2838	+ 46	32	34.14	16.632
χ Virginis	4.7	14	13	45.073	3.2388	- 12	54	55.72	16.708
θ Bootis	4.1	14	21	49.636	2.0435	+ 52	18	29.72	16.734
ρ Bootis	3.6	14	27	33.823	+ 2.5867	+ 30	48	21.14	- 15.919
5 Ursæ Minoris	4.5	14	27	43.694	- 0.1790	+ 76	8	10.20	16.003
α^2 Centauri	0.2	14	32	52.248	+ 4.0444	- 60	25	36.79	15.022
33 Bootis	5.3	14	35	9.220	2.2344	+ 44	49	53.97	15.669
α Apodis	4.1	14	35	32.670	7.2337	- 78	37	28.28	15.628
ϵ Bootis	2.6	14	40	39.810	+ 2.6203	+ 27	29	29.21	- 15.310
α^2 Libræ	2.9	14	45	24.002	+ 3.3116	- 15	37	49.62	15.125
β Ursæ Minoris	2.2	14	50	59.430	- 0.2186	+ 74	33	36.33	14.719
β Bootis	3.7	14	58	13.022	+ 2.2600	+ 40	46	51.34	14.325
γ Scorpii	3.4	14	58	16.455	3.5019	- 24	53	34.39	14.329
δ Bootis	3.5	15	11	30.698	+ 2.4191	+ 33	41	2.38	- 13.571
β Libræ	2.9	15	11	40.707	3.2232	- 9	1	3.84	13.459
ρ Octantis	5.7	15	20	24.57*	+ 13.1386	- 84	8	7.83	- 12.780

MEAN PLACES FOR 1901.0. (January 0^d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	'	"	"
α^1 Bootis	4.5	15	20	45.035	+ 2.2662	+ 37	43	27.24	- 12.754
γ^2 Ursæ Minoris	3.2	15	20	52.982	- 0.1260	+ 72	11	10.52	12.813
β Coronæ Borealis	3.9	15	23	44.844	+ 2.4735	+ 29	26	48.60	12.555
α Coronæ Borealis	2.3	15	30	29.763	2.5391	+ 27	2	51.73	12.269
α Serpentis	2.7	15	39	23.459	2.9522	+ 6	44	13.03	11.500
ϵ Serpentis	3.7	15	45	52.817	+ 2.9874	+ 4	46	32.44	- 11.004
ϵ Ursæ Minoris	4.6	15	47	35.140	- 2.2315	+ 78	5	56.95	10.952
ϵ Coronæ Borealis	4.1	15	53	29.295	+ 2.4819	+ 27	9	51.78	10.580
δ Scorpii	2.6	15	54	28.670	3.5401	- 22	20	24.19	10.473
γ^1 Scorpii	2.9	15	59	40.717	3.4815	- 19	32	4.36	10.076
δ^1 Apodis	4.9	16	5	32.389	+ 8.8064	- 78	26	47.37	- 9.656
ϵ Herculis	4.2	16	5	39.032	1.8891	+ 45	11	39.70	9.556
Groombridge 2320	5.5	16	6	3.065	0.1472	+ 68	4	15.12	9.510
δ Ophiuchi	2.8	16	9	9.400	3.1403	- 3	26	22.28	9.466
σ Coronæ Borealis	5.3	16	10	58.258	2.2454	+ 34	6	34.06	9.252
τ Herculis	3.9	16	16	45.910	+ 1.8024	+ 46	32	56.32	- 8.698
γ Apodis	4.0	16	18	15.292	+ 9.0577	- 78	40	29.89	8.692
γ Ursæ Minoris	5.0	16	20	23.497	- 1.8063	+ 75	59	0.86	8.188
γ Draconis	2.8	16	22	38.982	+ 0.8053	+ 61	44	17.58	8.204
α Scorpii (<i>Antares</i>)	1.2	16	23	20.151	3.6721	- 26	12	44.63	8.235
β Herculis	2.8	16	25	57.796	+ 2.5769	+ 21	42	18.40	- 8.021
Δ Draconis	5.0	16	28	10.438	- 0.1353	+ 68	58	56.39	7.783
ϵ Ophiuchi	2.8	16	31	42.390	+ 3.2996	- 10	22	0.06	7.511
α Trianguli Australis	2.2	16	38	10.664	6.3112	- 68	50	45.69	7.055
γ Herculis	3.7	16	39	30.095	2.0552	+ 39	6	37.25	6.990
κ Ophiuchi	3.4	16	52	58.908	+ 2.8376	+ 9	31	43.53	- 5.790
ϵ Ursæ Minoris	4.5	16	56	5.917	- 6.3023	+ 82	12	2.18	5.500
δ^1 Herculis	5.3	16	57	57.027	+ 2.2116	+ 33	42	41.01	5.370
γ Ophiuchi	2.5	17	4	41.957	3.4365	- 15	36	8.68	4.699
α^1 Herculis (<i>var.</i>)	3.2	17	10	7.982	2.7340	+ 14	30	10.73	4.298
π Herculis	3.4	17	11	35.904	+ 2.0880	+ 36	55	14.01	- 4.203
θ Ophiuchi	3.3	17	15	55.720	3.6807	- 24	54	2.94	3.867
δ Ophiuchi (<i>var.</i>)	4.4	17	20	19.381	3.6599	- 24	5	3.90	3.591
δ Aræ	3.8	17	22	9.569	5.4023	- 60	36	5.41	3.415
β Draconis	3.0	17	28	11.730	1.3535	+ 52	22	28.44	2.764
α Ophiuchi	2.2	17	30	20.320	+ 2.7833	+ 12	37	54.78	- 2.822
ϵ Herculis	4.0	17	36	40.233	+ 1.6931	+ 46	3	32.04	2.034
ω Draconis	4.9	17	37	31.817	- 0.3557	+ 68	48	13.39	1.644
μ Herculis	3.5	17	42	35.024	+ 2.3465	+ 27	46	42.32	2.271
ϵ^1 Draconis	4.8	17	43	41.865	- 1.0770	+ 72	11	50.97	1.693
θ Herculis	3.9	17	52	51.467	+ 2.0567	+ 37	15	48.46	- 0.620
γ Draconis	2.5	17	54	18.440	1.3921	+ 51	30	1.45	0.522
γ^2 Sagittarii	2.9	17	59	26.853	3.8517	- 30	25	31.34	- 0.246
σ Herculis	3.9	18	3	40.830	+ 2.3391	+ 28	44	55.33	+ 0.324
δ Ursæ Minoris	4.4	18	4	13.23*	- 19.4892	+ 86	36	48.14	0.417
μ Sagittarii	4.1	18	7	50.552	+ 3.5869	- 21	5	5.46	+ 0.684
γ Serpentis	3.5	18	16	11.204	3.1026	- 2	55	28.60	0.724
λ Sagittarii	2.9	18	21	51.667	+ 3.7029	- 25	28	35.69	+ 1.711

MEAN PLACES FOR 1901.0. (January 0^d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	'	"	"
χ Draconis	3.8	18	22	50.601	- 1.0774	+ 72	41	23.66	+ 1.620
1 Aquilæ	4.0	18	29	49.186	+ 3.2646	- 8	18	48.23	2.286
ν Pavonis	4.2	18	31	28.072	7.0262	- 71	30	46.76	2.582
α Lyræ (<i>Vega</i>)	0.2	18	33	35.193	2.0313	+ 38	41	28.92	3.207
β Lyræ (<i>var.</i>)	3.6	18	46	25.484	2.2145	+ 33	14	51.26	4.028
σ Sagittarii	2.3	18	49	7.588	+ 3.7208	- 26	25	11.36	+ 4.189
50 Draconis	5.6	18	49	34.251	- 1.9123	+ 75	19	1.80	4.353
γ Lyræ	3.3	18	55	14.403	+ 2.2433	+ 32	33	12.86	4.780
ν Aquilæ	3.1	19	0	51.588	2.7568	+ 13	42	58.04	5.162
σ Octantis	5.6	19	1	25.45*	102.0456	- 89	15	11.22	5.306
ι Lyræ	5.2	19	3	46.161	+ 2.1411	+ 35	56	40.87	+ 5.487
δ Sagittarii	5.0	19	11	50.577	3.5118	- 19	7	45.14	6.165
δ Draconis	3.1	19	12	32.035	0.0256	+ 67	29	14.62	6.327
θ Lyræ	4.4	19	12	55.896	+ 2.0807	+ 37	57	26.37	6.278
τ Draconis	4.5	19	17	27.650	- 1.1274	+ 73	10	18.46	6.757
δ Aquilæ	3.5	19	20	30.418	+ 3.0252	+ 2	55	2.02	+ 6.979
λ Ursæ Minoris	6.5	19	21	21.65*	- 68.0910	+ 88	59	22.83	6.976
β Cygni	3.1	19	26	43.725	+ 2.4187	+ 27	45	5.65	7.397
κ Aquilæ	5.0	19	31	33.972	3.2294	- 7	14	51.48	7.800
β Sagittæ	4.5	19	36	36.141	2.6939	+ 17	14	47.50	8.170
γ Aquilæ	2.8	19	41	33.185	+ 2.8521	+ 10	22	18.54	+ 8.592
δ Cygni	2.9	19	41	52.881	1.8760	+ 44	53	20.28	8.665
α Aquilæ (<i>Altair</i>)	0.9	19	45	57.188	+ 2.9274	+ 8	36	24.00	9.319
ε Draconis	3.9	19	48	30.710	- 0.1814	+ 70	0	56.75	9.168
ε Pavonis	4.1	19	49	8.752	+ 7.0104	- 73	10	17.94	9.070
β Aquilæ	3.9	19	50	27.025	+ 2.9470	+ 6	9	33.63	+ 8.811
γ Sagittæ	3.6	19	54	21.254	2.6673	+ 19	13	23.14	9.618
ε Sagittarii	4.5	19	56	34.306	3.6950	- 27	59	6.66	9.776
τ Aquilæ	5.7	19	59	18.241	2.9311	+ 6	59	54.90	10.000
θ Aquilæ	3.3	20	6	11.832	3.0966	- 1	6	54.88	10.495
31 Cygni	3.9	20	10	30.890	+ 1.8901	+ 46	26	27.39	+ 10.814
κ Cephei (<i>pr.</i>)	4.4	20	12	13.814	- 1.9418	+ 77	24	48.12	10.961
α ² Capricorni	3.7	20	12	33.751	+ 3.3316	- 12	51	6.53	10.967
α Pavonis	2.1	20	17	49.052	4.7727	- 57	3	8.58	11.249
γ Cygni	2.3	20	18	40.507	2.1524	+ 39	56	22.68	11.404
π Capricorni	5.1	20	21	39.322	+ 3.4379	- 18	32	10.63	+ 11.614
ε Delphini	4.0	20	28	29.014	+ 2.8666	+ 10	57	59.81	12.073
Groombridge 3241	6.5	20	30	26.276	- 0.2291	+ 72	11	46.59	12.216
α Delphini	3.9	20	35	2.399	+ 2.7868	+ 15	33	46.14	12.567
β Pavonis	3.4	20	36	2.478	5.4595	- 66	33	32.53	12.616
α Cygni	1.4	20	38	3.405	+ 2.0444	+ 44	55	35.06	+ 12.753
ψ Capricorni	4.3	20	40	14.129	3.5590	- 25	37	35.75	12.754
ε Cygni	2.6	20	42	12.332	2.4271	+ 33	35	57.40	13.359
μ Aquarii	4.8	20	47	18.894	+ 3.2389	- 9	21	17.91	13.331
12 Year Catalogue, 1879	5.3	20	52	5.467	- 2.5837	+ 80	10	52.26	13.653
ν Cygni	4.1	20	53	28.924	+ 2.2350	+ 40	47	8.90	+ 13.749
61 ¹ Cygni	5.4	21	2	27.506	2.6846	+ 38	15	44.62	17.570
ζ Cygni	3.3	21	8	43.346	+ 2.5515	+ 29	49	14.42	+ 14.643

MEAN PLACES FOR 1901.0. (January 0^d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s		°	'	"	
τ Cygni	3.8	21	10	50.336	+ 2.3934	+ 37	37	21.61	+ 15.263
α Cephei	2.6	21	16	13.057	1.4359	+ 62	9	57.70	15.191
ι Pegasi	4.3	21	17	30.481	2.7738	+ 19	22	50.90	15.279
ζ Capricorni	3.8	21	21	0.992	3.4326	- 22	50	24.74	15.434
β Aquarii	2.9	21	26	20.877	3.1609	- 6	0	24.62	15.697
β Cephei (<i>pr.</i>)	3.4	21	27	23.122	+ 0.7909	+ 70	7	33.83	+ 15.769
ξ Aquarii	4.8	21	32	28.951	3.1968	- 8	17	53.83	16.012
74 Cygni	5.0	21	32	58.844	2.4023	+ 39	58	7.12	16.070
λ^1 Octantis	5.4	21	35	45.973	9.6835	- 83	10	27.13	16.193
ϵ Pegasi	2.4	21	39	19.414	2.9462	+ 9	25	15.49	16.387
ι Cephei	4.8	21	40	28.373	+ 0.8928	+ 70	51	19.81	+ 16.538
π^2 Cygni	4.5	21	43	8.115	2.2133	+ 48	51	5.00	16.576
μ Capricorni	5.2	21	47	53.962	3.2746	- 14	1	4.68	16.808
16 Pegasi	5.1	21	48	33.433	2.7276	+ 25	27	33.42	16.845
79 Draconis	6.6	21	51	37.700	0.7255	+ 73	14	1.95	16.999
α Aquarii	3.0	22	0	41.979	+ 3.0826	- 0	48	3.12	+ 17.389
α Gruis	1.9	22	1	59.733	3.8001	- 47	26	26.14	17.273
π^2 Pegasi	4.3	22	5	35.402	2.6614	+ 32	41	32.32	17.582
θ Aquarii	4.4	22	11	36.612	3.1683	- 8	16	34.63	17.828
ν Octantis	6.2	22	12	47.80*	12.8035	- 86	28	15.67	17.968
γ Aquarii	4.0	22	16	32.596	+ 3.0997	- 1	53	10.33	+ 18.054
π Aquarii	4.6	22	20	13.268	3.0641	+ 0	52	29.66	18.176
σ Aquarii	4.9	22	25	24.548	3.1783	- 11	11	4.50	18.338
α Lacertæ	3.9	22	27	12.728	2.4657	+ 49	46	24.23	18.439
η Aquarii	4.2	22	30	16.170	3.0836	- 0	37	40.13	18.477
226 Cephei (B.)	5.7	22	30	32.161	+ 1.0697	+ 75	42	58.33	+ 18.539
ι Lacertæ	5.0	22	34	49.094	2.6869	+ 38	32	5.61	18.667
β Octantis	4.4	22	35	57.264	6.4090	- 81	54	2.21	18.716
ζ Pegasi	3.5	22	36	31.465	2.9911	+ 10	18	52.00	18.718
λ Pegasi	4.1	22	41	45.700	2.8858	+ 23	2	40.51	18.881
ι Cephei	3.6	22	46	9.282	+ 2.1249	+ 65	40	46.64	+ 18.889
λ Aquarii	3.8	22	47	27.012	3.1318	- 8	6	23.24	19.086
α Pis. Aust. (<i>Fomalhaut</i>).	1.3	22	52	10.894	3.3239	- 30	8	49.22	19.005
α Andromedæ	3.8	22	57	21.861	2.7519	+ 41	47	37.88	19.293
α Pegasi (<i>Markab</i>).	2.5	22	59	49.726	2.9855	+ 14	40	21.15	19.321
φ Aquarii	4.3	23	9	11.731	+ 3.1078	- 6	34	57.97	+ 19.362
α Cephei	5.1	23	14	33.483	2.4459	+ 67	34	11.24	19.672
τ Pegasi	4.6	23	15	44.144	2.9642	+ 23	11	54.17	19.662
θ Piscium	4.3	23	22	56.749	3.0416	+ 5	50	6.75	19.745
λ Andromedæ	3.8	23	32	43.005	2.9242	+ 45	55	18.40	19.485
ι Piscium	4.3	23	34	51.478	+ 3.0839	+ 5	5	22.88	+ 19.490
γ Cephei	3.5	23	35	16.912	2.4281	+ 77	4	47.39	20.088
ι^1 Aquarii	5.2	23	39	4.056	3.1158	- 18	49	35.28	19.958
δ Sculptoris	4.6	23	43	46.181	3.1300	- 28	40	40.73	19.864
γ^1 Octantis	5.2	23	46	18.273	3.6593	- 82	34	8.44	19.999
Groombridge 4163	6.6	23	50	0.474	+ 2.8671	+ 73	51	33.84	+ 20.023
ω Piscium	4.2	23	54	13.630	+ 3.0788	+ 6	18	54.99	+ 19.933

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

<i>α</i> Ursæ Minoris. (Polaris.)			51 Cephei (Hæv.)			<i>δ</i> Ursæ Minoris.			<i>λ</i> Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
Jan.	h m	° '	Jan.	h m	° '	Jan.	h m	° '	Jan.	h m	° '
	1 23	+88 47		6 54	+87 12		18 3	+86 36		19 19	+88 59
	s	"		s	"		s	"		s	"
0.3	34.31	9.2	0.5	48.85	7.8	0.9	44.59	50.2	1.0	51.46	33.5
1.3	33.49	9.3	1.5	48.99	8.1	1.9	44.57	49.9	2.0	51.00	33.2
2.3	32.67	9.5	2.5	49.14	8.3	2.9	44.54	49.6	3.0	50.52	32.9
3.3	31.79	9.6	3.5	49.28	8.6	3.9	44.51	49.3	4.0	50.02	32.6
4.3	30.85	9.7	4.5	49.43	8.9	4.9	44.51	48.9	5.0	49.55	32.3
5.3	29.85	9.9	5.5	49.57	9.3	5.9	44.52	48.6	6.0	49.14	32.0
6.3	28.80	10.0	6.5	49.66	9.6	6.9	44.55	48.2	7.0	48.78	31.6
7.3	27.71	10.1	7.5	49.74	10.0	7.9	44.61	47.8	8.0	48.51	31.3
8.3	26.60	10.1	8.5	49.78	10.3	8.9	44.70	47.5	9.0	48.34	30.9
9.3	25.50	10.2	9.5	49.77	10.7	9.9	44.81	47.1	10.0	48.24	30.6
10.2	24.44	10.2	10.5	49.77	11.0	10.9	44.93	46.8	11.0	48.20	30.2
11.2	23.41	10.2	11.5	49.74	11.3	11.9	45.05	46.5	12.0	48.21	29.9
12.2	22.46	10.2	12.5	49.70	11.6	12.9	45.16	46.2	13.0	48.19	29.6
13.2	21.55	10.2	13.5	49.67	11.9	13.9	45.28	45.9	13.9	48.17	29.3
14.2	20.66	10.3	14.5	49.67	12.2	14.9	45.37	45.7	14.9	48.12	29.0
15.2	19.79	10.3	15.5	49.65	12.5	15.9	45.45	45.4	15.9	48.00	28.7
16.2	18.88	10.3	16.5	49.68	12.8	16.9	45.53	45.1	16.9	47.86	28.4
17.2	17.95	10.3	17.5	49.68	13.1	17.9	45.61	44.8	17.9	47.71	28.1
18.2	16.97	10.4	18.5	49.70	13.4	18.9	45.70	44.4	18.9	47.58	27.8
19.2	15.91	10.4	19.5	49.71	13.7	19.9	45.81	44.1	19.9	47.50	27.5
20.2	14.82	10.4	20.4	49.68	14.0	20.9	45.95	43.7	20.9	47.49	27.1
21.2	13.71	10.4	21.4	49.63	14.4	21.9	46.11	43.4	21.9	47.57	26.7
22.2	12.58	10.4	22.4	49.55	14.8	22.9	46.30	43.1	22.9	47.72	26.4
23.2	11.49	10.4	23.4	49.44	15.1	23.9	46.49	42.8	23.9	47.95	26.0
24.2	10.43	10.3	24.4	49.30	15.4	24.9	46.69	42.5	24.9	48.24	25.7
25.2	9.45	10.3	25.4	49.17	15.7	25.9	46.89	42.2	25.9	48.53	25.4
26.2	8.53	10.2	26.4	49.03	16.0	26.9	47.08	41.9	26.9	48.83	25.1
27.2	7.65	10.1	27.4	48.91	16.2	27.9	47.26	41.7	27.9	49.09	24.8
28.2	6.82	10.0	28.4	48.77	16.5	28.9	47.44	41.5	28.9	49.32	24.5
29.2	5.98	10.0	29.4	48.67	16.8	29.9	47.60	41.2	29.9	49.51	24.3
30.2	5.11	9.9	30.4	48.57	17.0	30.9	47.77	40.9	30.9	49.69	24.0
31.2	4.19	9.9	31.4	48.48	17.3	31.9	47.95	40.7	31.9	49.87	23.7
32.2	3.22	9.8	32.4	48.37	17.6	32.9	48.13	40.4	32.9	50.10	23.4

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

<i>α</i> Ursæ Minoris. (<i>Polaris</i> .)			51 Cephei (Hæv.)			<i>δ</i> Ursæ Minoris.			<i>λ</i> Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
Feb.	^h ^m 1 22	+88 47	Feb.	^h ^m 6 54	+87 12	Feb.	^h ^m 18 3	+86 36	Feb.	^h ^m 19 19	+88 59
	^s	"		^s	"		^s	"		^s	"
1.2	63.22	9.8	1.4	48.37	17.6	1.9	48.13	40.4	1.9	50.10	23.4
2.2	62.21	9.8	2.4	48.23	17.9	2.9	48.33	40.1	2.9	50.39	23.0
3.2	61.16	9.7	3.4	48.08	18.2	3.9	48.57	39.8	3.9	50.75	22.7
4.2	60.06	9.6	4.4	47.90	18.6	4.9	48.82	39.5	4.9	51.22	22.3
5.2	59.02	9.5	5.4	47.67	18.9	5.9	49.11	39.2	5.9	51.77	22.0
6.2	57.99	9.4	6.4	47.41	19.2	6.9	49.40	39.0	6.9	52.38	21.7
7.2	57.01	9.2	7.4	47.14	19.4	7.9	49.71	38.7	7.9	53.05	21.4
8.2	56.11	9.0	8.4	46.90	19.7	8.9	50.00	38.5	8.9	53.70	21.1
9.2	55.26	8.8	9.4	46.62	19.9	9.9	50.27	38.3	9.9	54.36	20.8
10.2	54.47	8.7	10.4	46.36	20.2	10.9	50.54	38.2	10.9	54.97	20.6
11.2	53.70	8.5	11.4	46.13	20.4	11.9	50.79	38.0	11.9	55.55	20.3
12.2	52.94	8.4	12.4	45.89	20.6	12.9	51.04	37.8	12.9	56.07	20.1
13.2	52.14	8.3	13.4	45.68	20.9	13.9	51.29	37.6	13.9	56.56	19.8
14.2	51.33	8.1	14.4	45.48	21.1	14.9	51.53	37.3	14.9	57.08	19.6
15.1	50.46	8.0	15.4	45.25	21.3	15.9	51.80	37.1	15.9	57.61	19.3
16.1	49.55	7.8	16.4	45.02	21.6	16.8	52.07	36.9	16.9	58.22	19.0
17.1	48.62	7.7	17.4	44.76	21.9	17.8	52.37	36.7	17.9	58.89	18.7
18.1	47.68	7.5	18.4	44.46	22.2	18.8	52.70	36.4	18.9	59.63	18.4
19.1	46.76	7.3	19.4	44.15	22.4	19.8	53.04	36.2	19.9	60.46	18.1
20.1	45.90	7.1	20.4	43.82	22.7	20.8	53.40	36.1	20.9	61.33	17.9
21.1	45.10	6.9	21.4	43.47	22.9	21.8	53.75	35.9	21.9	62.24	17.6
22.1	44.37	6.6	22.4	43.10	23.1	22.8	54.07	35.8	22.9	63.14	17.4
23.1	43.70	6.4	23.4	42.76	23.3	23.8	54.40	35.7	23.9	64.02	17.2
24.1	43.10	6.2	24.3	42.43	23.4	24.8	54.71	35.6	24.9	64.85	17.0
25.1	42.51	5.9	25.3	42.13	23.6	25.8	55.01	35.4	25.9	65.64	16.8
26.1	41.91	5.7	26.3	41.83	23.7	26.8	55.30	35.3	26.9	66.38	16.6
27.1	41.29	5.5	27.3	41.53	23.9	27.8	55.60	35.2	27.9	67.14	16.4
28.1	40.63	5.3	28.3	41.24	24.1	28.8	55.90	35.0	28.9	67.89	16.2
29.1	39.92	5.1	29.3	40.92	24.3	29.8	56.22	34.9	29.9	68.72	16.0

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris. (Polaris.)		Mean Solar Date.	51 Cephei (HEV.)		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Mar.	h m 1 22	° ' " +88 46	Mar.	h m 6 54	° ' " +87 12	Mar.	h m 18 3	° ' " +86 36	Mar.	h m 19 20	° ' " +88 59
	s	"		s	"		s	"		s	"
1.1	39.92	65.1	1.3	40.92	24.3	1.8	56.22	34.9	1.9	8.72	16.0
2.1	39.17	64.9	2.3	40.58	24.5	2.8	56.55	34.7	2.9	9.59	15.7
3.1	38.40	64.7	3.3	40.23	24.7	3.8	56.91	34.6	3.9	10.54	15.5
4.1	37.64	64.4	4.3	39.83	24.9	4.8	57.30	34.5	4.9	11.59	15.3
5.1	36.94	64.2	5.3	39.43	25.1	5.8	57.70	34.4	5.9	12.70	15.0
6.1	36.28	63.9	6.3	39.00	25.3	6.8	58.09	34.3	6.9	13.83	14.8
7.1	35.68	63.6	7.3	38.56	25.4	7.8	58.48	34.2	7.9	15.00	14.7
8.1	35.17	63.3	8.3	38.12	25.5	8.8	58.88	34.2	8.9	16.16	14.5
9.1	34.71	63.0	9.3	37.71	25.6	9.8	59.23	34.1	9.8	17.26	14.4
10.1	34.30	62.7	10.3	37.31	25.7	10.8	59.58	34.1	10.8	18.32	14.3
11.1	33.92	62.4	11.3	36.92	25.8	11.8	59.92	34.1	11.8	19.32	14.1
12.1	33.51	62.1	12.3	36.56	25.9	12.8	60.24	34.0	12.8	20.28	14.0
13.1	33.10	61.9	13.3	36.19	26.0	13.8	60.57	34.0	13.8	21.24	13.9
14.1	32.65	61.6	14.3	35.84	26.1	14.8	60.89	33.9	14.8	22.20	13.7
15.1	32.15	61.4	15.3	35.46	26.3	15.8	61.24	33.8	15.8	23.18	13.6
16.1	31.64	61.1	16.3	35.07	26.4	16.8	61.60	33.8	16.8	24.25	13.4
17.1	31.11	60.8	17.3	34.67	26.5	17.8	61.97	33.7	17.8	25.36	13.3
18.1	30.61	60.5	18.3	34.24	26.6	18.8	62.37	33.7	18.8	26.55	13.1
19.1	30.16	60.2	19.3	33.79	26.7	19.8	62.77	33.7	19.8	27.78	13.0
20.1	29.77	60.0	20.3	33.32	26.8	20.8	63.17	33.7	20.8	29.05	12.9
21.1	29.45	59.6	21.3	32.86	26.9	21.8	63.56	33.7	21.8	30.30	12.8
22.0	29.20	59.2	22.3	32.40	26.9	22.7	63.93	33.7	22.8	31.54	12.7
23.0	29.02	58.9	23.3	31.96	26.9	23.7	64.29	33.8	23.8	32.72	12.7
24.0	28.88	58.6	24.3	31.55	26.9	24.7	64.63	33.9	24.8	33.85	12.6
25.0	28.75	58.3	25.3	31.17	27.0	25.7	64.94	33.9	25.8	34.93	12.6
26.0	28.61	58.0	26.3	30.78	27.0	26.7	65.27	34.0	26.8	35.96	12.5
27.0	28.45	57.7	27.3	30.40	27.0	27.7	65.59	34.0	27.8	37.00	12.5
28.0	28.24	57.5	28.3	30.03	27.0	28.7	65.92	34.0	28.8	38.06	12.4
29.0	28.00	57.2	29.3	29.64	27.1	29.7	66.27	34.0	29.8	39.17	12.3
30.0	27.73	56.9	30.3	29.21	27.1	30.7	66.63	34.1	30.8	40.35	12.2
31.0	27.46	56.6	31.3	28.76	27.2	31.7	67.02	34.1	31.8	41.60	12.2
32.0	27.21	56.3	32.2	28.30	27.2	32.7	67.41	34.2	32.8	42.91	12.1

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

α Ursæ Minoris. (Polaris.)			51 Cephei (Hæv.)			δ Ursæ Minoris.			λ Ursæ Minoris.		
Mean Solar Date.	Right Ascension.	Declina- tion North.	Mean Solar Date.	Right Ascension.	Declina- tion North.	Mean Solar Date.	Right Ascension.	Declina- tion North.	Mean Solar Date.	Right Ascension.	Declina- tion North.
Apr.	h m 1 22	+88 46	Apr.	h m 6 54	+87 12	Apr.	h m 18 4	+86 36	Apr.	h m 19 20	+88 59
	s "			s "			s "			s "	
1.0	27.21	56.3	1.2	28.30	27.2	1.7	7.41	34.2	1.8	42.91	12.1
2.0	27.03	55.9	2.2	27.81	27.2	2.7	7.81	34.2	2.8	44.26	12.0
3.0	26.92	55.6	3.2	27.32	27.2	3.7	8.21	34.3	3.8	45.63	12.0
4.0	26.87	55.2	4.2	26.84	27.2	4.7	8.58	34.5	4.8	46.97	12.0
5.0	26.90	54.8	5.2	26.37	27.1	5.7	8.95	34.6	5.8	48.27	12.1
6.0	27.00	54.5	6.2	25.92	27.1	6.7	9.30	34.7	6.8	49.51	12.1
7.0	27.11	54.2	7.2	25.50	27.0	7.7	9.62	34.9	7.8	50.70	12.1
8.0	27.23	53.9	8.2	25.09	26.9	8.7	9.94	35.0	8.8	51.81	12.2
9.0	27.34	53.6	9.2	24.71	26.8	9.7	10.23	35.1	9.8	52.88	12.2
10.0	27.43	53.3	10.2	24.33	26.8	10.7	10.53	35.2	10.8	53.95	12.2
10.9	27.45	53.0	11.2	23.95	26.7	11.7	10.85	35.3	11.8	55.04	12.2
11.9	27.47	52.7	12.2	23.57	26.7	12.7	11.17	35.4	12.8	56.15	12.2
12.9	27.47	52.4	13.2	23.16	26.7	13.7	11.50	35.6	13.8	57.31	12.2
13.9	27.48	52.1	14.2	22.74	26.6	14.7	11.84	35.7	14.8	58.55	12.3
14.9	27.52	51.8	15.2	22.30	26.6	15.7	12.20	35.8	15.8	59.82	12.3
15.9	27.65	51.4	16.2	21.87	26.5	16.7	12.55	36.0	16.8	61.11	12.3
16.9	27.80	51.1	17.2	21.41	26.4	17.7	12.88	36.2	17.7	62.40	12.4
17.9	28.06	50.8	18.2	20.97	26.3	18.7	13.21	36.4	18.7	63.66	12.5
18.9	28.38	50.4	19.2	20.56	26.2	19.7	13.52	36.6	19.7	64.87	12.6
19.9	28.75	50.1	20.2	20.16	26.0	20.7	13.80	36.8	20.7	66.01	12.7
20.9	29.15	49.8	21.2	19.78	25.9	21.7	14.07	37.0	21.7	67.09	12.9
21.9	29.53	49.5	22.2	19.44	25.7	22.7	14.31	37.2	22.7	68.10	13.0
22.9	29.91	49.3	23.2	19.10	25.6	23.7	14.56	37.4	23.7	69.08	13.1
23.9	30.23	49.0	24.2	18.78	25.4	24.7	14.80	37.6	24.7	70.08	13.2
24.9	30.50	48.7	25.2	18.44	25.3	25.7	15.06	37.8	25.7	71.09	13.3
25.9	30.76	48.5	26.2	18.07	25.2	26.7	15.33	37.9	26.7	72.17	13.4
26.9	31.01	48.2	27.2	17.72	25.1	27.7	15.64	38.1	27.7	73.28	13.4
27.9	31.27	47.9	28.2	17.33	25.0	28.7	15.94	38.3	28.7	74.47	13.5
28.9	31.58	47.6	29.2	16.92	24.8	29.6	16.24	38.5	29.7	75.69	13.6
29.9	31.95	47.3	30.2	16.50	24.7	30.6	16.54	38.8	30.7	76.93	13.8
30.9	32.39	46.9	31.2	16.09	24.5	31.6	16.83	39.0	31.7	78.16	13.9
31.9	32.89	46.6									

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

<i>α</i> Ursæ Minoris. (<i>Polaris</i> .)			51 Cephei (HEV.)			<i>δ</i> Ursæ Minoris.			<i>λ</i> Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion <i>North</i> .	Mean Solar Date.	Right Ascen- sion.	Declina- tion <i>North</i> .	Mean Solar Date.	Right Ascen- sion.	Declina- tion <i>North</i> .	Mean Solar Date.	Right Ascen- sion.	Declina- tion <i>North</i> .
May	h m 1 22	+88 46	May	h m 6 54	+87 12	May	h m 18 4	+86 36	May	h m 19 21	+88 59
	s "	"		s "	"		s "	"		s "	"
1.9	32.89	46.6	1.2	16.09	24.5	1.6	16.83	39.0	1.7	18.16	13.9
2.9	33.44	46.3	2.2	15.70	24.3	2.6	17.11	39.3	2.7	19.34	14.1
3.9	34.06	46.0	3.2	15.33	24.1	3.6	17.35	39.6	3.7	20.45	14.3
4.9	34.68	45.8	4.2	14.98	23.9	4.6	17.58	39.8	4.7	21.48	14.5
5.9	35.28	45.5	5.2	14.66	23.7	5.6	17.79	40.1	5.7	22.45	14.7
6.9	35.86	45.3	6.2	14.36	23.4	6.6	17.98	40.4	6.7	23.34	14.9
7.9	36.41	45.1	7.1	14.09	23.2	7.6	18.16	40.6	7.7	24.19	15.1
8.9	36.92	44.9	8.1	13.81	23.0	8.6	18.35	40.9	8.6	25.07	15.2
9.9	37.41	44.6	9.1	13.54	22.9	9.6	18.54	41.1	9.6	25.94	15.4
10.9	37.87	44.4	10.1	13.26	22.7	10.6	18.75	41.3	10.6	26.86	15.6
11.9	38.37	44.1	11.1	12.96	22.5	11.6	18.98	41.6	11.6	27.83	15.7
12.9	38.91	43.8	12.1	12.63	22.3	12.6	19.20	41.8	12.6	28.83	15.9
13.9	39.52	43.6	13.1	12.32	22.1	13.6	19.42	42.1	13.6	29.85	16.1
14.9	40.21	43.3	14.1	12.00	21.9	14.6	19.64	42.4	14.6	30.87	16.3
15.9	40.95	43.1	15.1	11.68	21.7	15.6	19.84	42.7	15.6	31.86	16.5
16.9	41.76	42.8	16.1	11.38	21.4	16.6	20.02	43.0	16.6	32.79	16.7
17.9	42.60	42.6	17.1	11.11	21.1	17.6	20.17	43.3	17.6	33.65	17.0
18.9	43.44	42.4	18.1	10.87	20.9	18.6	20.31	43.7	18.6	34.43	17.3
19.9	44.25	42.2	19.1	10.65	20.6	19.6	20.42	44.0	19.6	35.15	17.5
20.9	45.03	42.1	20.1	10.45	20.3	20.6	20.52	44.3	20.6	35.81	17.8
21.9	45.75	41.9	21.1	10.26	20.0	21.6	20.63	44.6	21.6	36.47	18.0
22.9	46.43	41.7	22.1	10.08	19.8	22.6	20.74	44.8	22.6	37.12	18.3
23.9	47.09	41.5	23.1	9.90	19.6	23.6	20.85	45.1	23.6	37.81	18.5
24.9	47.75	41.3	24.1	9.68	19.4	24.6	20.98	45.4	24.6	38.52	18.7
25.9	48.42	41.1	25.1	9.45	19.1	25.6	21.13	45.6	25.6	39.31	18.9
26.9	49.17	40.9	26.1	9.22	18.9	26.6	21.28	45.9	26.6	40.14	19.1
27.9	49.96	40.7	27.1	8.97	18.6	27.6	21.43	46.2	27.6	40.98	19.4
28.9	50.83	40.5	28.1	8.71	18.3	28.6	21.57	46.6	28.6	41.83	19.6
29.9	51.76	40.3	29.1	8.48	18.0	29.6	21.70	46.9	29.6	42.61	19.9
30.9	52.72	40.1	30.1	8.26	17.7	30.6	21.80	47.3	30.6	43.35	20.2
31.9	53.70	39.9	31.1	8.08	17.4	31.6	21.87	47.6	31.6	44.01	20.6
32.9	54.67	39.8	32.1	7.92	17.1	32.6	21.92	48.0	32.6	44.56	20.9

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris. (Polaris.)		Mean Solar Date.	γ Cephei (HEV.)		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
June	h m	° '	June	h m	° '	June	h m	° '	June	h m	° '
	1 22	+88 46		6 54	+87 12		18 4	+86 36		19 21	+88 59
	s	"		s	"		s	"		s	"
1.9	54.67	39.8	1.1	7.92	17.1	1.6	21.92	48.0	1.6	44.56	20.9
2.9	55.60	39.7	2.1	7.79	16.8	2.6	21.96	48.3	2.6	45.05	21.2
3.8	56.51	39.6	3.1	7.69	16.5	3.5	21.98	48.7	3.6	45.48	21.5
4.8	57.35	39.5	4.1	7.60	16.2	4.5	22.01	49.0	4.6	45.90	21.8
5.8	58.18	39.4	5.1	7.50	15.9	5.5	22.02	49.2	5.6	46.32	22.0
6.8	58.98	39.2	6.1	7.40	15.7	6.5	22.07	49.5	6.6	46.76	22.3
7.8	59.79	39.1	7.1	7.30	15.4	7.5	22.13	49.8	7.6	47.23	22.6
8.8	60.63	39.0	8.1	7.18	15.1	8.5	22.18	50.1	8.6	47.77	22.8
9.8	61.51	38.9	9.1	7.05	14.9	9.5	22.24	50.4	9.6	48.30	23.1
10.8	62.47	38.7	10.1	6.91	14.6	10.5	22.29	50.8	10.6	48.85	23.4
11.8	63.48	38.6	11.1	6.78	14.3	11.5	22.31	51.1	11.6	49.36	23.7
12.8	64.53	38.4	12.1	6.67	13.9	12.5	22.34	51.5	12.6	49.84	24.0
13.8	65.64	38.4	13.0	6.59	13.6	13.5	22.33	51.8	13.6	50.23	24.4
14.8	66.75	38.3	14.0	6.53	13.2	14.5	22.28	52.2	14.6	50.55	24.7
15.8	67.82	38.2	15.0	6.50	12.9	15.5	22.24	52.6	15.6	50.78	25.1
16.8	68.87	38.2	16.0	6.50	12.6	16.5	22.17	52.9	16.6	50.95	25.4
17.8	69.87	38.2	17.0	6.51	12.2	17.5	22.10	53.2	17.6	51.08	25.7
18.8	70.82	38.1	18.0	6.53	11.9	18.5	22.03	53.5	18.6	51.21	26.0
19.8	71.72	38.1	19.0	6.55	11.6	19.5	21.97	53.8	19.6	51.36	26.3
20.8	72.59	38.0	20.0	6.56	11.4	20.5	21.92	54.1	20.6	51.55	26.6
21.8	73.48	38.0	21.0	6.53	11.1	21.5	21.88	54.4	21.6	51.79	26.9
22.8	74.40	37.9	22.0	6.50	10.8	22.5	21.87	54.7	22.6	52.07	27.2
23.8	75.36	37.8	23.0	6.45	10.5	23.5	21.84	55.0	23.6	52.37	27.5
24.8	76.40	37.7	24.0	6.42	10.2	24.5	21.82	55.4	24.6	52.67	27.8
25.8	77.50	37.7	25.0	6.39	9.8	25.5	21.77	55.7	25.6	52.93	28.2
26.8	78.64	37.6	26.0	6.36	9.5	26.5	21.70	56.1	26.6	53.15	28.5
27.8	79.80	37.6	27.0	6.37	9.1	27.5	21.61	56.4	27.6	53.28	28.9
28.8	80.96	37.6	28.0	6.41	8.8	28.5	21.50	56.8	28.6	53.32	29.2
29.8	82.08	37.6	29.0	6.48	8.4	29.5	21.36	57.1	29.5	53.29	29.6
30.8	83.14	37.7	30.0	6.57	8.1	30.5	21.22	57.4	30.5	53.18	30.0
31.8	84.16	37.7	31.0	6.70	7.8	31.5	21.06	57.7	31.5	53.05	30.3

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

<i>α</i> Ursæ Minoris. (Polaris.)			<i>γ</i> Cephei (Hev.)			<i>δ</i> Ursæ Minoris.			<i>λ</i> Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
July	h m 1 23	+88 46	July	h m 6 54	+87 11	July	h m 18 4	+86 36	July	h m 19 21	+88 59
	s "			s "			s "			s "	
1.8	24.16	37.7	1.0	6.70	67.8	1.5	21.06	57.7	1.5	53.05	30.3
2.8	25.13	37.7	2.0	6.80	67.5	2.5	20.91	58.0	2.5	52.91	30.6
3.8	26.07	37.8	3.0	6.91	67.2	3.5	20.77	58.3	3.5	52.78	30.9
4.8	26.99	37.8	3.9	7.04	66.9	4.5	20.64	58.6	4.5	52.67	31.2
5.8	27.93	37.8	4.9	7.12	66.6	5.5	20.52	58.9	5.5	52.61	31.5
6.8	28.91	37.8	5.9	7.19	66.3	6.5	20.41	59.2	6.5	52.59	31.8
7.8	29.95	37.8	6.9	7.27	66.0	7.5	20.30	59.5	7.5	52.57	32.1
8.8	31.03	37.9	7.9	7.36	65.7	8.5	20.17	59.8	8.5	52.53	32.5
9.8	32.17	37.9	8.9	7.43	65.4	9.5	20.01	60.1	9.5	52.46	32.8
10.7	33.36	37.9	9.9	7.54	65.0	10.5	19.84	60.5	10.5	52.31	33.2
11.7	34.54	38.0	10.9	7.68	64.7	11.5	19.65	60.8	11.5	52.10	33.6
12.7	35.71	38.1	11.9	7.85	64.3	12.4	19.43	61.1	12.5	51.79	33.9
13.7	36.83	38.2	12.9	8.05	64.0	13.4	19.21	61.4	13.5	51.41	34.3
14.7	37.90	38.3	13.9	8.25	63.6	14.4	18.97	61.7	14.5	50.99	34.6
15.7	38.90	38.4	14.9	8.48	63.3	15.4	18.73	62.0	15.5	50.55	35.0
16.7	39.85	38.5	15.9	8.70	63.0	16.4	18.50	62.3	16.5	50.10	35.3
17.7	40.76	38.6	16.9	8.91	62.8	17.4	18.27	62.5	17.5	49.69	35.6
18.7	41.67	38.7	17.9	9.10	62.5	18.4	18.07	62.8	18.5	49.35	35.9
19.7	42.61	38.8	18.9	9.28	62.2	19.4	17.89	63.0	19.5	49.04	36.2
20.7	43.59	38.9	19.9	9.45	61.9	20.4	17.70	63.3	20.5	48.76	36.5
21.7	44.59	38.9	20.9	9.61	61.6	21.4	17.52	63.6	21.5	48.49	36.8
22.7	45.66	39.0	21.9	9.76	61.3	22.4	17.32	63.9	22.5	48.21	37.1
23.7	46.76	39.1	22.9	9.94	61.0	23.4	17.11	64.2	23.5	47.89	37.5
24.7	47.89	39.2	23.9	10.15	60.7	24.4	16.86	64.5	24.5	47.48	37.8
25.7	49.04	39.4	24.9	10.37	60.3	25.4	16.59	64.8	25.5	47.00	38.2
26.7	50.14	39.5	25.9	10.62	60.0	26.4	16.31	65.1	26.5	46.44	38.5
27.7	51.21	39.7	26.9	10.91	59.7	27.4	16.01	65.3	27.5	45.81	38.9
28.7	52.21	39.9	27.9	11.20	59.4	28.4	15.71	65.6	28.5	45.12	39.2
29.7	53.15	40.1	28.9	11.53	59.1	29.4	15.41	65.8	29.5	44.41	39.5
30.7	54.05	40.3	29.9	11.82	58.8	30.4	15.11	66.0	30.5	43.72	39.8
31.7	54.92	40.4	30.9	12.12	58.6	31.4	14.83	66.3	31.5	43.05	40.1
32.7	55.78	40.6	31.9	12.42	58.3	32.4	14.57	66.5	32.5	42.44	40.4

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

α Ursæ Minoris. (Polaris.)			γ Cephei (Hev.)			δ Ursæ Minoris.			λ Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
Aug.	^h ^m 1 23	+88 46	Aug.	^h ^m 6 54	+87 11	Aug.	^h ^m 18 4	+86 37	Aug.	^h ^m 19 21	+88 59
	^s	"		^s	"		^s	"		^s	"
1.7	55.78	40.6	1.9	12.68	58.1	1.4	14.57	6.5	1.5	42.44	40.4
2.7	56.67	40.7	2.9	12.95	57.8	2.4	14.29	6.7	2.4	41.86	40.6
3.7	57.59	40.9	3.9	13.20	57.6	3.4	14.04	6.9	3.4	41.28	40.9
4.7	58.56	41.0	4.9	13.47	57.3	4.4	13.76	7.1	4.4	40.72	41.2
5.7	59.59	41.2	5.9	13.75	57.0	5.4	13.50	7.4	5.4	40.12	41.5
6.7	60.64	41.4	6.9	14.05	56.7	6.4	13.20	7.7	6.4	39.47	41.9
7.7	61.73	41.6	7.9	14.39	56.4	7.4	12.87	7.9	7.4	38.75	42.2
8.7	62.80	41.8	8.9	14.76	56.1	8.4	12.53	8.2	8.4	37.95	42.6
9.7	63.82	42.0	9.9	15.15	55.8	9.4	12.16	8.4	9.4	37.06	42.9
10.7	64.80	42.3	10.9	15.53	55.5	10.4	11.79	8.6	10.4	36.12	43.2
11.7	65.71	42.5	11.9	15.93	55.3	11.4	11.41	8.8	11.4	35.16	43.5
12.7	66.55	42.8	12.9	16.32	55.1	12.4	11.04	9.0	12.4	34.22	43.8
13.7	67.35	43.0	13.9	16.70	54.8	13.4	10.70	9.2	13.4	33.26	44.0
14.7	68.12	43.2	14.9	17.04	54.6	14.4	10.36	9.3	14.4	32.39	44.3
15.6	68.89	43.5	15.9	17.40	54.4	15.4	10.04	9.5	15.4	31.55	44.5
16.6	69.68	43.7	16.9	17.71	54.2	16.3	9.73	9.6	16.4	30.76	44.8
17.6	70.52	43.9	17.9	18.04	54.0	17.3	9.42	9.8	17.4	30.00	45.0
18.6	71.40	44.1	18.9	18.38	53.7	18.3	9.11	10.0	18.4	29.24	45.3
19.6	72.34	44.3	19.9	18.71	53.4	19.3	8.78	10.2	19.4	28.44	45.6
20.6	73.31	44.5	20.9	19.09	53.2	20.3	8.44	10.4	20.4	27.58	45.9
21.6	74.26	44.8	21.9	19.51	52.9	21.3	8.07	10.6	21.4	26.66	46.2
22.6	75.21	45.0	22.9	19.92	52.7	22.3	7.69	10.8	22.4	25.65	46.5
23.6	76.09	45.3	23.9	20.37	52.4	23.3	7.29	11.0	23.4	24.58	46.8
24.6	76.92	45.6	24.8	20.84	52.2	24.3	6.89	11.2	24.4	23.43	47.0
25.6	77.68	45.9	25.8	21.30	52.0	25.3	6.46	11.3	25.4	22.27	47.3
26.6	78.38	46.3	26.8	21.74	51.8	26.3	6.06	11.4	26.4	21.12	47.5
27.6	79.05	46.6	27.8	22.18	51.7	27.3	5.67	11.5	27.4	19.99	47.7
28.6	79.69	46.8	28.8	22.61	51.5	28.3	5.30	11.6	28.4	18.88	47.9
29.6	80.35	47.1	29.8	23.01	51.3	29.3	4.94	11.7	29.4	17.84	48.1
30.6	81.02	47.3	30.8	23.42	51.2	30.3	4.58	11.8	30.4	16.84	48.4
31.6	81.74	47.6	31.8	23.82	51.0	31.3	4.22	12.0	31.4	15.83	48.6
32.6	82.52	47.9	32.8	24.22	50.8	32.3	3.85	12.1	32.4	14.83	48.8

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

<i>a</i> Ursæ Minoris. (<i>Polaris</i> .)			51 Cephei (HEV.)			<i>δ</i> Ursæ Minoris.			<i>λ</i> Ursæ Minoris.		
Mean Solar Date.	Right Ascension.	Declination North.	Mean Solar Date.	Right Ascension.	Declination North.	Mean Solar Date.	Right Ascension.	Declination North.	Mean Solar Date.	Right Ascension.	Declination North.
Sept.	h m 1 24	+88 46	Sept.	h m 6 54	+87 11	Sept.	h m 18 3	+86 37	Sept.	h m 19 20	+88 59
	s	"		s	"		s	"		s	"
1.6	22.52	47.9	1.8	24.22	50.8	1.3	63.85	12.1	1.4	74.83	48.8
2.6	23.33	48.2	2.8	24.66	50.6	2.3	63.45	12.3	2.4	73.77	49.0
3.6	24.15	48.5	3.8	25.11	50.3	3.3	63.06	12.4	3.4	72.66	49.3
4.6	24.99	48.8	4.8	25.59	50.1	4.3	62.63	12.6	4.4	71.48	49.6
5.6	25.78	49.1	5.8	26.09	49.9	5.3	62.19	12.7	5.4	70.22	49.8
6.6	26.52	49.5	6.8	26.62	49.7	6.3	61.74	12.8	6.4	68.91	50.1
7.6	27.20	49.8	7.8	27.14	49.6	7.3	61.28	12.9	7.4	67.54	50.3
8.6	27.80	50.2	8.8	27.65	49.5	8.3	60.82	12.9	8.4	66.18	50.5
9.6	28.34	50.5	9.8	28.15	49.3	9.3	60.40	13.0	9.4	64.85	50.6
10.6	28.84	50.8	10.8	28.63	49.2	10.3	59.98	13.0	10.3	63.56	50.8
11.6	29.33	51.2	11.8	29.09	49.1	11.3	59.58	13.1	11.3	62.33	50.9
12.6	29.81	51.5	12.8	29.53	49.0	12.3	59.20	13.1	12.3	61.17	51.1
13.6	30.34	51.8	13.8	29.96	48.9	13.3	58.83	13.2	13.3	60.03	51.3
14.6	30.91	52.1	14.8	30.40	48.7	14.3	58.45	13.2	14.3	58.91	51.4
15.6	31.52	52.4	15.8	30.84	48.6	15.3	58.07	13.3	15.3	57.78	51.6
16.6	32.15	52.7	16.8	31.30	48.4	16.3	57.68	13.4	16.3	56.60	51.8
17.6	32.81	53.0	17.8	31.79	48.2	17.3	57.26	13.5	17.3	55.37	52.0
18.6	33.47	53.3	18.8	32.30	48.1	18.3	56.83	13.5	18.3	54.06	52.2
19.6	34.05	53.7	19.8	32.84	48.0	19.3	56.38	13.6	19.3	52.68	52.4
20.6	34.61	54.1	20.8	33.38	47.8	20.3	55.93	13.6	20.3	51.26	52.6
21.5	35.08	54.5	21.8	33.94	47.7	21.3	55.47	13.7	21.3	49.78	52.7
22.5	35.48	54.9	22.8	34.48	47.7	22.2	55.02	13.6	22.3	48.33	52.9
23.5	35.83	55.2	23.8	35.00	47.6	23.2	54.58	13.6	23.3	46.90	53.0
24.5	36.13	55.6	24.8	35.52	47.6	24.2	54.15	13.6	24.3	45.51	53.1
25.5	36.43	55.9	25.8	36.00	47.5	25.2	53.75	13.6	25.3	44.16	53.2
26.5	36.77	56.3	26.8	36.48	47.4	26.2	53.35	13.5	26.3	42.87	53.2
27.5	37.14	56.6	27.8	36.96	47.4	27.2	52.96	13.5	27.3	41.61	53.3
28.5	37.56	56.9	28.8	37.43	47.3	28.2	52.57	13.5	28.3	40.35	53.4
29.5	38.01	57.2	29.8	37.92	47.2	29.2	52.17	13.5	29.3	39.06	53.6
30.5	38.49	57.6	30.8	38.43	47.1	30.2	51.73	13.6	30.3	37.73	53.7
31.5	38.96	58.0	31.7	38.96	47.0	31.2	51.30	13.6	31.3	36.33	53.8

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris. (<i>Polaris</i> .)		Mean Solar Date.	51 Cephei (Hæv.)		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion <i>North</i> .		Right Ascen- sion.	Declina- tion <i>North</i> .		Right Ascen- sion.	Declina- tion <i>North</i> .		Right Ascen- sion.	Declina- tion <i>North</i> .
Oct.	^h ^m 1 24	[°] ['] +88 46	Oct.	^h ^m 6 54	[°] ['] +87 11	Oct.	^h ^m 18 3	[°] ['] +86 37	Oct.	^h ^m 19 19	[°] ['] +88 59
	^s	"		^s	"		^s	"		^s	"
1.5	38.96	58.0	1.7	38.96	47.0	1.2	51.30	13.6	1.3	96.33	53.8
2.5	39.40	58.4	2.7	39.52	46.9	2.2	50.84	13.6	2.3	94.88	54.0
3.5	39.80	58.8	3.7	40.08	46.8	3.2	50.37	13.5	3.3	93.35	54.1
4.5	40.13	59.2	4.7	40.66	46.8	4.2	49.90	13.5	4.3	91.79	54.2
5.5	40.39	59.6	5.7	41.24	46.8	5.2	49.45	13.5	5.3	90.22	54.3
6.5	40.57	60.0	6.7	41.80	46.8	6.2	48.99	13.4	6.3	88.68	54.3
7.5	40.72	60.4	7.7	42.33	46.8	7.2	48.56	13.3	7.3	87.16	54.4
8.5	40.83	60.8	8.7	42.84	46.8	8.2	48.15	13.2	8.3	85.71	54.4
9.5	40.94	61.1	9.7	43.33	46.8	9.2	47.76	13.1	9.3	84.35	54.4
10.5	41.07	61.4	10.7	43.80	46.8	10.2	47.38	13.0	10.3	83.02	54.5
11.5	41.22	61.8	11.7	44.28	46.8	11.2	47.01	12.9	11.3	81.73	54.5
12.5	41.43	62.1	12.7	44.75	46.8	12.2	46.64	12.9	12.3	80.48	54.6
13.5	41.66	62.4	13.7	45.22	46.7	13.2	46.25	12.8	13.3	79.17	54.6
14.5	41.91	62.8	14.7	45.73	46.7	14.2	45.86	12.8	14.3	77.83	54.7
15.5	42.16	63.2	15.7	46.26	46.7	15.2	45.46	12.7	15.3	76.43	54.8
16.5	42.37	63.6	16.7	46.81	46.7	16.2	45.01	12.6	16.2	74.95	54.8
17.5	42.53	64.0	17.7	47.35	46.7	17.2	44.58	12.5	17.2	73.43	54.9
18.5	42.64	64.4	18.7	47.93	46.7	18.2	44.14	12.4	18.2	71.87	54.9
19.5	42.65	64.8	19.7	48.50	46.8	19.2	43.71	12.3	19.2	70.30	54.9
20.5	42.61	65.2	20.7	49.03	46.8	20.2	43.28	12.1	20.2	68.77	54.9
21.5	42.52	65.6	21.7	49.55	46.9	21.2	42.88	12.0	21.2	67.29	54.8
22.5	42.40	66.0	22.7	50.06	47.0	22.2	42.51	11.8	22.2	65.85	54.8
23.5	42.30	66.4	23.7	50.54	47.1	23.2	42.15	11.6	23.2	64.50	54.8
24.5	42.23	66.7	24.7	51.00	47.1	24.2	41.78	11.5	24.2	63.17	54.7
25.5	42.19	67.0	25.7	51.47	47.2	25.2	41.44	11.4	25.2	61.86	54.7
26.5	42.20	67.3	26.7	51.95	47.2	26.2	41.07	11.2	26.2	60.55	54.7
27.5	42.23	67.7	27.7	52.45	47.2	27.2	40.71	11.1	27.2	59.22	54.7
28.4	42.28	68.1	28.7	52.94	47.3	28.1	40.32	11.0	28.2	57.83	54.7
29.4	42.32	68.5	29.7	53.48	47.3	29.1	39.92	10.9	29.2	56.39	54.7
30.4	42.30	68.9	30.7	54.02	47.4	30.1	39.52	10.7	30.2	54.90	54.7
31.4	42.22	69.3	31.7	54.58	47.5	31.1	39.11	10.6	31.2	53.36	54.6
32.4	42.07	69.7	32.7	55.12	47.6	32.1	38.70	10.4	32.2	51.80	54.6

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris. (Polaris.)		Mean Solar Date.	51 Cephei (Hæv.)		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
	h m I 24	° ' " +88 47		h m 6 54	° ' " +87 11		h m 18 3	° ' " +86 37		h m 19 19	° ' " +88 59
Nov.	s	"	Nov.	s	"	Nov.	s	"	Nov.	s	"
1.4	42.07	9.7	1.7	55.12	47.6	1.1	38.70	10.4	1.2	51.80	54.6
2.4	41.86	10.1	2.7	55.66	47.7	2.1	38.30	10.2	2.2	50.28	54.5
3.4	41.58	10.5	3.7	56.17	47.8	3.1	37.92	10.0	3.2	48.81	54.4
4.4	41.24	10.8	4.7	56.66	48.0	4.1	37.57	9.7	4.2	47.38	54.3
5.4	40.92	11.2	5.7	57.10	48.1	5.1	37.24	9.5	5.2	46.05	54.2
6.4	40.60	11.5	6.6	57.54	48.2	6.1	36.94	9.3	6.2	44.77	54.1
7.4	40.30	11.8	7.6	57.96	48.4	7.1	36.65	9.1	7.2	43.55	54.0
8.4	40.06	12.1	8.6	58.39	48.5	8.1	36.34	8.9	8.2	42.35	53.9
9.4	39.84	12.4	9.6	58.81	48.6	9.1	36.05	8.7	9.2	41.16	53.8
10.4	39.65	12.8	10.6	59.25	48.7	10.1	35.74	8.5	10.2	39.95	53.7
11.4	39.46	13.1	11.6	59.70	48.8	11.1	35.40	8.3	11.2	38.68	53.6
12.4	39.25	13.5	12.6	60.19	48.9	12.1	35.08	8.1	12.2	37.38	53.6
13.4	38.98	13.8	13.6	60.67	49.0	13.1	34.73	7.9	13.2	36.00	53.5
14.4	38.66	14.2	14.6	61.18	49.2	14.1	34.39	7.7	14.2	34.60	53.4
15.4	38.25	14.6	15.6	61.66	49.4	15.1	34.05	7.4	15.2	33.19	53.2
16.4	37.78	14.9	16.6	62.13	49.6	16.1	33.72	7.2	16.2	31.81	53.1
17.4	37.26	15.3	17.6	62.58	49.8	17.1	33.42	6.9	17.2	30.48	52.9
18.4	36.71	15.6	18.6	63.00	50.0	18.1	33.14	6.6	18.2	29.20	52.7
19.4	36.16	15.9	19.6	63.41	50.2	19.1	32.88	6.3	19.2	27.99	52.5
20.4	35.64	16.2	20.6	63.79	50.4	20.1	32.64	6.0	20.1	26.86	52.4
21.4	35.15	16.5	21.6	64.17	50.6	21.1	32.38	5.8	21.1	25.78	52.2
22.4	34.69	16.8	22.6	64.53	50.7	22.1	32.16	5.5	22.1	24.70	52.0
23.4	34.28	17.1	23.6	64.92	50.9	23.1	31.91	5.3	23.1	23.61	51.9
24.4	33.90	17.4	24.6	65.32	51.1	24.1	31.65	5.1	24.1	22.49	51.7
25.4	33.49	17.7	25.6	65.74	51.2	25.1	31.39	4.8	25.1	21.34	51.6
26.4	33.06	18.0	26.6	66.17	51.4	26.1	31.10	4.6	26.1	20.13	51.4
27.4	32.58	18.4	27.6	66.61	51.6	27.1	30.81	4.3	27.1	18.87	51.3
28.4	32.03	18.7	28.6	67.04	51.8	28.1	30.54	4.0	28.1	17.61	51.1
29.4	31.41	19.0	29.6	67.46	52.1	29.1	30.26	3.7	29.1	16.36	50.9
30.4	30.71	19.3	30.6	67.86	52.3	30.1	30.02	3.4	30.1	15.16	50.7
31.4	29.98	19.6	31.6	68.23	52.6	31.1	29.79	3.1	31.1	14.02	50.4

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris. (<i>Polaris</i> .)		Mean Solar Date.	51 Cephei (Hrv.)		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Dec.	h m 1 24	° +88 47	Dec.	h m 6 55	° +87 11	Dec.	h m 18 3	° +86 36	Dec.	h m 19 18	° +88 59
	s	"		s	"		s	"		s	"
1.4	29.98	19.6	1.6	8.23	52.6	1.1	29.79	63.1	1.1	74.02	50.4
2.4	29.22	19.9	2.6	8.57	52.9	2.1	29.59	62.7	2.1	72.97	50.2
3.3	28.47	20.2	3.6	8.88	53.1	3.1	29.41	62.4	3.1	72.00	49.9
4.3	27.74	20.4	4.6	9.18	53.4	4.0	29.25	62.1	4.1	71.10	49.7
5.3	27.04	20.6	5.6	9.45	53.6	5.0	29.10	61.8	5.1	70.25	49.4
6.3	26.39	20.8	6.6	9.74	53.9	6.0	28.96	61.5	6.1	69.42	49.2
7.3	25.79	21.1	7.6	10.03	54.1	7.0	28.81	61.2	7.1	68.58	49.0
8.3	25.18	21.3	8.6	10.32	54.3	8.0	28.65	61.0	8.1	67.70	48.8
9.3	24.58	21.6	9.6	10.63	54.5	9.0	28.46	60.7	9.1	66.80	48.6
10.3	23.94	21.8	10.6	10.97	54.7	10.0	28.28	60.4	10.1	65.84	48.4
11.3	23.23	22.1	11.6	11.29	55.0	11.0	28.10	60.1	11.1	64.85	48.2
12.3	22.47	22.4	12.5	11.63	55.3	12.0	27.92	59.8	12.1	63.86	47.9
13.3	21.63	22.6	13.5	11.94	55.6	13.0	27.76	59.4	13.1	62.89	47.7
14.3	20.73	22.9	14.5	12.22	55.9	14.0	27.61	59.1	14.1	61.96	47.4
15.3	19.80	23.1	15.5	12.49	56.2	15.0	27.48	58.7	15.1	61.12	47.1
16.3	18.87	23.3	16.5	12.73	56.5	16.0	27.38	58.3	16.1	60.34	46.8
17.3	17.97	23.5	17.5	12.94	56.8	17.0	27.30	58.0	17.1	59.64	46.5
18.3	17.10	23.7	18.5	13.13	57.1	18.0	27.23	57.7	18.1	59.00	46.2
19.3	16.27	23.8	19.5	13.33	57.4	19.0	27.17	57.3	19.1	58.41	45.9
20.3	15.49	24.0	20.5	13.52	57.6	20.0	27.11	57.0	20.1	57.81	45.6
21.3	14.73	24.2	21.5	13.72	57.9	21.0	27.04	56.7	21.1	57.20	45.4
22.3	13.99	24.3	22.5	13.93	58.1	22.0	26.96	56.4	22.1	56.56	45.1
23.3	13.24	24.5	23.5	14.17	58.4	23.0	26.87	56.1	23.1	55.88	44.9
24.3	12.42	24.7	24.5	14.42	58.7	24.0	26.75	55.8	24.1	55.15	44.6
25.3	11.58	24.9	25.5	14.65	59.0	25.0	26.65	55.5	25.1	54.41	44.3
26.3	10.65	25.1	26.5	14.88	59.3	26.0	26.56	55.2	26.0	53.68	44.0
27.3	9.68	25.3	27.5	15.08	59.6	27.0	26.48	54.8	27.0	53.00	43.7
28.3	8.65	25.5	28.5	15.26	60.0	28.0	26.44	54.4	28.0	52.38	43.4
29.3	7.59	25.6	29.5	15.40	60.3	28.9	26.42	54.0	29.0	51.83	43.1
30.3	6.53	25.7	30.5	15.51	60.6	29.9	26.43	53.7	30.0	51.40	42.7
31.3	5.51	25.8	31.5	15.59	61.0	30.9	26.45	53.3	31.0	51.05	42.4
32.3	4.52	25.9	32.5	15.65	61.3	31.9	26.50	53.0	32.0	50.76	42.1

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	33 Piscium.		α Andromedæ.		β Cassiopeiæ.		22 Andromedæ.		γ Pegasi. (Algenib.)	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m o o	° ' " - 6 15	h m o 3	° ' " +28 32	h m o 3	° ' " +58 36	h m o 5	° ' " +45 31	h m o 8	° ' " +14 38
	s	"	s	"	s	"	s	"	s	"
Jan. 0.2	16.81	38.4	17.04	52.4	54.67	36.1	11.44	36.4	9.09	9.2
10.2	16.70	39.0	16.90	51.5	54.36	35.3	11.23	35.5	8.97	8.4
20.2	16.59	39.5	16.76	50.2	54.07	34.0	11.04	34.2	8.86	7.4
30.2	16.50	39.8	16.64	48.8	53.80	32.2	10.86	32.5	8.75	6.3
Feb. 9.1	16.43	40.0	16.54	47.2	53.56	30.0	10.70	30.5	8.67	5.3
	16.37	40.0	16.46	45.6	53.38	27.6	10.58	28.3	8.60	4.2
Mar. 1.1	16.34	39.8	16.42	43.9	53.25	24.9	10.50	26.0	8.56	3.2
11.0	16.34	39.5	16.41	42.3	53.20	22.1	10.47	23.7	8.55	2.4
21.0	16.38	38.9	16.44	40.9	53.22	19.4	10.50	21.4	8.57	1.7
31.0	16.45	38.0	16.51	39.6	53.31	16.8	10.58	19.3	8.64	1.3
	16.56	36.9	16.63	38.7	53.49	14.5	10.72	17.5	8.75	1.2
Apr. 10.0	16.71	35.6	16.80	38.1	53.74	12.5	10.92	16.1	8.90	1.3
19.9	16.90	34.0	17.01	37.8	54.07	10.9	11.17	15.0	9.09	1.8
29.9	17.12	32.3	17.26	38.0	54.45	9.7	11.47	14.4	9.32	2.5
May 9.9	17.37	30.4	17.55	38.5	54.89	9.1	11.81	14.2	9.58	3.6
19.9	17.65	28.4	17.86	39.4	55.36	9.0	12.18	14.5	9.86	5.0
29.8	17.95	26.4	18.19	40.7	55.86	9.4	12.57	15.3	10.17	6.6
June 8.8	18.26	24.4	18.53	42.3	56.37	10.3	12.98	16.6	10.48	8.4
18.8	18.57	22.4	18.87	44.2	56.88	11.7	13.38	18.2	10.80	10.4
28.7	18.87	20.5	19.20	46.3	57.37	13.6	13.77	20.2	11.11	12.5
July 8.7	19.16	18.8	19.52	48.6	57.84	15.9	14.14	22.6	11.41	14.6
18.7	19.43	17.2	19.81	51.0	58.26	18.5	14.48	25.2	11.68	16.7
28.7	19.67	15.9	20.07	53.4	58.64	21.4	14.79	28.0	11.93	18.8
Aug. 7.6	19.88	14.8	20.29	55.9	58.97	24.6	15.05	30.9	12.15	20.7
17.6	20.05	14.0	20.48	58.4	59.23	27.8	15.26	33.9	12.33	22.6
27.6	20.18	13.5	20.62	60.7	59.44	31.2	15.43	36.9	12.47	24.2
Sept. 6.6	20.28	13.3	20.73	62.9	59.58	34.6	15.55	39.8	12.57	25.7
16.5	20.33	13.3	20.79	64.9	59.66	37.9	15.62	42.7	12.64	26.9
26.5	20.35	13.5	20.81	66.7	59.67	41.1	15.65	45.3	12.67	27.9
Oct. 6.5	20.34	14.0	20.80	68.3	59.63	44.1	15.63	47.8	12.67	28.7
16.4	20.30	14.6	20.76	69.6	59.53	46.8	15.57	50.0	12.64	29.3
26.4	20.23	15.3	20.69	70.7	59.38	49.2	15.47	51.9	12.58	29.6
Nov. 5.4	20.15	16.0	20.60	71.4	59.18	51.3	15.34	53.4	12.50	29.7
15.4	20.05	16.9	20.49	71.9	58.95	52.9	15.19	54.5	12.41	29.6
25.3	19.94	17.7	20.36	72.0	58.68	54.0	15.01	55.2	12.30	29.3
Dec. 5.3	19.83	18.5	20.23	71.8	58.39	54.6	14.82	55.5	12.19	28.8
15.3	19.71	19.3	20.08	71.3	58.08	54.7	14.61	55.3	12.07	28.2
25.3	19.59	19.9	19.94	70.5	57.76	54.2	14.40	54.6	11.94	27.4

FIXED STARS, 1901.

325

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	σ Andromedæ.		ι Ceti.		44 Piscium.		β Hydri.		ι_2 Ceti.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m ° ' "	° ' "	h m ° ' "	° ' "	h m ° ' "	° ' "	h m ° ' "	° ' "	h m ° ' "	° ' "
	0 13	+36 14	0 14	- 9 21	0 20	+ 1 23	0 20	-77 48	0 24	- 4 29
	s	"	s	"	s	"	s	"	s	"
Jan. 0.2	10.28	27.7	23.80	80.6	20.51	33.9	32.05	57.1	60.05	72.8
10.2	10.12	26.8	23.69	81.2	20.40	33.2	31.13	56.1	59.94	73.5
20.2	9.96	25.6	23.57	81.6	20.29	32.5	30.26	54.5	59.82	74.0
30.2	9.81	24.1	23.47	81.9	20.19	31.9	29.48	52.3	59.72	74.5
Feb. 9.1	9.68	22.3	23.39	82.0	20.10	31.3	28.80	49.7	59.63	74.8
19.1	9.58	20.4	23.32	81.8	20.02	30.9	28.24	46.7	59.55	74.9
Mar. 1.1	9.51	18.5	23.27	81.5	19.98	30.7	27.81	43.3	59.50	74.8
11.1	9.48	16.6	23.26	80.9	19.96	30.6	27.53	39.8	59.48	74.6
21.0	9.50	14.8	23.28	80.1	19.97	30.7	27.39	36.0	59.49	74.1
31.0	9.56	13.1	23.34	79.1	20.02	31.1	27.42	32.2	59.53	73.3
Apr. 10.0	9.68	11.7	23.43	77.8	20.11	31.7	27.61	28.4	59.62	72.3
19.9	9.85	10.7	23.57	76.3	20.25	32.6	27.94	24.7	59.74	71.1
29.9	10.07	10.0	23.74	74.6	20.42	33.8	28.43	21.2	59.91	69.7
May 9.9	10.33	9.7	23.96	72.8	20.63	35.1	29.06	17.9	60.11	68.1
19.9	10.63	9.9	24.20	70.8	20.87	36.7	29.82	14.9	60.35	66.3
29.8	10.96	10.5	24.47	68.7	21.14	38.5	30.69	12.4	60.62	64.3
June 8.8	11.31	11.5	24.77	66.6	21.43	40.4	31.65	10.3	60.91	62.3
18.8	11.67	12.8	25.07	64.6	21.74	42.3	32.67	8.6	61.21	60.3
28.8	12.03	14.6	25.38	62.6	22.04	44.3	33.74	7.5	61.52	58.3
July 8.7	12.38	16.6	25.69	60.7	22.35	46.3	34.82	7.0	61.82	56.3
18.7	12.72	18.8	25.99	59.0	22.65	48.2	35.88	7.1	62.12	54.5
28.7	13.04	21.3	26.26	57.6	22.92	50.0	36.89	7.7	62.40	52.9
Aug. 7.6	13.32	23.9	26.51	56.4	23.17	51.6	37.82	8.9	62.65	51.5
17.6	13.57	26.5	26.73	55.4	23.40	53.0	38.64	10.6	62.88	50.3
27.6	13.77	29.2	26.92	54.8	23.58	54.2	39.33	12.7	63.07	49.4
Sept. 6.6	13.94	31.8	27.07	54.4	23.73	55.2	39.86	15.3	63.23	48.8
16.5	14.06	34.4	27.18	54.3	23.85	55.9	40.21	18.1	63.34	48.5
26.5	14.13	36.8	27.24	54.5	23.92	56.3	40.38	21.2	63.42	48.4
Oct. 6.5	14.17	39.0	27.28	55.0	23.96	56.5	40.36	24.3	63.47	48.5
16.5	14.17	41.0	27.28	55.6	23.97	56.5	40.15	27.4	63.48	48.9
26.4	14.13	42.8	27.25	56.4	23.95	56.3	39.76	30.3	63.46	49.4
Nov. 5.4	14.06	44.2	27.19	57.3	23.91	55.9	39.21	32.9	63.42	50.1
15.4	13.97	45.4	27.11	58.2	23.84	55.4	38.52	35.2	63.35	50.8
25.3	13.85	46.2	27.02	59.2	23.76	54.8	37.72	37.0	63.27	51.7
Dec. 5.3	13.71	46.6	26.91	60.2	23.66	54.2	36.83	38.2	63.17	52.5
15.3	13.56	46.7	26.80	61.0	23.55	53.4	35.89	38.8	63.07	53.3
25.3	13.40	46.4	26.68	61.8	23.44	52.7	34.93	38.8	62.95	54.1
35.2	13.23	45.7	26.56	62.5	23.32	51.9	33.99	38.2	62.83	54.9

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	π Andromedæ.		α Cassiopeïæ.		β Ceti.		γ Cassiopeïæ.		δ Cassiopeïæ.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 0 31	° ' " +33 10	h m 0 34	° ' " +55 59	h m 0 38	° ' " -18 31	h m 0 39	° ' " +74 26	h m 0 39	° ' " +47 44
Jan. 0.3	36.65	43.3	54.66	61.5	38.07	50.2	8.65	73.6	13.78	52.8
10.2	36.50	42.5	54.38	61.0	37.94	50.7	7.95	73.6	13.56	52.3
20.2	36.34	41.4	54.10	60.0	37.81	51.0	7.25	72.9	13.34	51.3
30.2	36.19	40.1	53.83	58.6	37.69	51.0	6.59	71.6	13.13	49.9
Feb. 9.1	36.06	38.6	53.59	56.7	37.58	50.8	5.98	69.8	12.93	48.2
19.1	35.95	36.9	53.38	54.6	37.48	50.2	5.47	67.6	12.77	46.2
Mar. 1.1	35.87	35.2	53.22	52.1	37.41	49.4	5.06	65.0	12.64	44.0
11.1	35.82	33.4	53.12	49.6	37.37	48.4	4.78	62.1	12.56	41.7
21.0	35.82	31.8	53.09	47.0	37.36	47.1	4.64	59.1	12.54	39.4
31.0	35.86	30.3	53.13	44.5	37.39	45.5	4.66	56.0	12.58	37.2
Apr. 10.0	35.96	29.0	53.25	42.1	37.46	43.7	4.83	53.1	12.67	35.2
20.0	36.10	28.1	53.43	40.1	37.57	41.7	5.15	50.4	12.83	33.5
29.9	36.29	27.5	53.70	38.4	37.72	39.6	5.62	48.0	13.05	32.2
May 9.9	36.53	27.2	54.02	37.1	37.92	37.3	6.21	46.0	13.33	31.2
19.9	36.81	27.4	54.40	36.2	38.15	35.0	6.92	44.5	13.65	30.6
29.8	37.12	28.0	54.83	35.9	38.41	32.7	7.71	43.5	14.02	30.6
June 8.8	37.45	28.9	55.28	36.0	38.70	30.4	8.56	43.0	14.41	30.9
18.8	37.80	30.2	55.76	36.6	39.01	28.2	9.45	43.1	14.82	31.8
28.8	38.16	31.8	56.25	37.8	39.32	26.1	10.36	43.7	15.24	33.0
July 8.7	38.51	33.7	56.73	39.3	39.64	24.3	11.26	44.9	15.66	34.7
18.7	38.85	35.8	57.19	41.3	39.95	22.7	12.13	46.5	16.06	36.6
28.7	39.16	38.1	57.63	43.6	40.24	21.4	12.95	48.6	16.44	39.0
Aug. 7.7	39.45	40.5	58.02	46.2	40.51	20.5	13.70	51.2	16.79	41.5
17.6	39.71	43.0	58.38	49.1	40.76	19.9	14.37	54.0	17.10	44.2
27.6	39.93	45.5	58.68	52.1	40.97	19.6	14.94	57.2	17.37	47.1
Sept. 6.6	40.11	47.9	58.93	55.3	41.14	19.7	15.41	60.6	17.59	50.0
16.5	40.25	50.3	59.12	58.5	41.28	20.2	15.77	64.1	17.76	52.9
26.5	40.35	52.5	59.25	61.7	41.37	20.9	16.01	67.7	17.89	55.8
Oct. 6.5	40.41	54.6	59.33	64.8	41.43	21.9	16.14	71.3	17.96	58.5
16.5	40.44	56.5	59.35	67.7	41.45	23.1	16.14	74.9	18.00	61.1
26.4	40.42	58.1	59.31	70.5	41.44	24.4	16.03	78.3	17.98	63.5
Nov. 5.4	40.38	59.5	59.23	73.0	41.39	25.8	15.81	81.5	17.93	65.7
15.4	40.31	60.6	59.10	75.1	41.33	27.2	15.47	84.4	17.84	67.5
25.4	40.21	61.3	58.93	76.9	41.24	28.6	15.04	86.8	17.71	69.0
Dec. 5.3	40.09	61.8	58.72	78.2	41.13	29.8	14.51	88.8	17.55	70.0
15.3	39.96	61.9	58.47	79.1	41.02	30.9	13.91	90.3	17.37	70.6
25.3	39.81	61.6	58.21	79.4	40.89	31.8	13.25	91.2	17.16	70.8
35.2	39.65	61.1	57.93	79.3	40.76	32.5	12.55	91.6	16.95	70.6

FIXED STARS, 1901.

327

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Piscium.		γ Cassiopeiæ.		μ Andromedæ.		43 Cephei (H.)		ϵ Piscium.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m ° 0 43 + 7 2		h m ° 0 50 + 60 10		h m ° 0 51 + 37 57		h m ° 0 55 + 85 43		h m ° 0 57 + 7 21	
	s " "		s " "		s " "		s " "		s " "	
Jan. 0.3	33.76	53.0	45.59	72.4	16.74	61.0	17.07	59.2	49.39	31.8
10.2	33.64	52.3	45.26	72.2	16.57	60.5	14.31	59.6	49.27	31.1
20.2	33.52	51.5	44.93	71.5	16.40	59.6	11.53	59.4	49.15	30.3
30.2	33.41	50.8	44.61	70.2	16.23	58.4	8.85	58.5	49.03	29.6
Feb. 9.2	33.30	50.0	44.31	68.5	16.07	56.9	6.38	57.0	48.92	28.9
19.1	33.21	49.4	44.05	66.5	15.93	55.2	4.20	55.0	48.81	28.2
Mar. 1.1	33.14	48.8	43.84	64.1	15.82	53.4	2.41	52.5	48.73	27.7
11.1	33.10	48.5	43.69	61.5	15.74	51.5	1.09	49.7	48.68	27.3
21.0	33.09	48.3	43.62	58.8	15.72	49.6	0.28	46.7	48.65	27.1
31.0	33.12	48.3	43.63	56.2	15.74	47.9	0.02	43.5	48.67	27.1
Apr. 10.0	33.19	48.5	43.72	53.7	15.81	46.4	0.31	40.4	48.72	27.3
20.0	33.30	49.1	43.90	51.4	15.94	45.1	1.14	37.4	48.82	27.8
29.9	33.46	49.8	44.16	49.4	16.12	44.2	2.49	34.7	48.96	28.5
May 9.9	33.65	50.9	44.50	47.8	16.36	43.6	4.29	32.3	49.15	29.5
19.9	33.88	52.2	44.90	46.7	16.63	43.4	6.48	30.3	49.37	30.8
29.9	34.14	53.7	45.35	46.0	16.95	43.6	9.01	28.8	49.62	32.2
June 8.8	34.43	55.4	45.85	45.8	17.29	44.2	11.78	27.8	49.90	33.9
18.8	34.73	57.2	46.37	46.1	17.65	45.2	14.71	27.3	50.19	35.7
28.8	35.04	59.1	46.91	47.0	18.02	46.5	17.73	27.5	50.50	37.6
July 8.7	35.35	61.1	47.44	48.3	18.39	48.2	20.75	28.1	50.81	39.5
18.7	35.65	63.0	47.96	50.0	18.75	50.2	23.71	29.3	51.12	41.4
28.7	35.94	64.9	48.45	52.1	19.10	52.4	26.54	31.1	51.41	43.3
Aug. 7.7	36.21	66.7	48.91	54.6	19.41	54.7	29.17	33.2	51.68	45.0
17.6	36.44	68.3	49.32	57.3	19.70	57.2	31.56	35.8	51.93	46.6
27.6	36.65	69.7	49.68	60.3	19.95	59.7	33.65	38.8	52.15	48.1
Sept. 6.6	36.82	71.0	49.98	63.4	20.17	62.2	35.41	42.1	52.33	49.3
16.5	36.96	72.0	50.23	66.6	20.34	64.7	36.79	45.6	52.48	50.3
26.5	37.06	72.8	50.40	69.9	20.47	67.2	37.78	49.2	52.60	51.1
Oct. 6.5	37.13	73.3	50.52	73.1	20.56	69.5	38.35	53.0	52.68	51.6
16.5	37.16	73.6	50.57	76.3	20.60	71.6	38.48	56.7	52.73	51.9
26.5	37.16	73.7	50.56	79.2	20.62	73.5	38.16	60.4	52.74	52.1
Nov. 5.4	37.14	73.6	50.49	82.0	20.59	75.2	37.40	63.9	52.74	52.0
15.4	37.09	73.4	50.36	84.4	20.54	76.6	36.21	67.2	52.70	51.8
25.4	37.03	73.0	50.19	86.4	20.45	77.6	34.60	70.1	52.64	51.4
Dec. 5.3	36.94	72.5	49.96	88.0	20.34	78.4	32.62	72.6	52.57	50.9
15.3	36.84	71.9	49.69	89.2	20.20	78.8	30.32	74.6	52.47	50.3
25.3	36.73	71.2	49.39	89.9	20.04	78.8	27.77	76.0	52.36	49.6
35.3	36.61	70.5	49.07	90.0	19.88	78.5	25.04	76.8	52.25	48.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Andromedæ.			κ Tucanæ.			γ Piscium.			θ^1 Ceti.			38 Cassiopeiæ.		
	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion South.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion South.	Right Ascension.		Declina- tion North.
	h	m	° ' "	h	m	° ' "	h	m	° ' "	h	m	° ' "	h	m	° ' "
	I	+	+35 5	I	2	-69 23	I	2	+ 3 5	I	9	- 8 41	I	23	+69 45
	s		"	s		"	s		"	s		"	s		"
Jan. 0.3	12.64	.16	59.7	25.01	.56	82.5	42.70	.12	39.5	5.62	.13	39.2	54.33	.50	41.1
10.2	12.48	.17	59.2	24.45	.56	82.5	42.58	.12	38.7	5.49	.13	40.0	53.83	.52	41.5
20.2	12.31	.17	58.4	23.89	.53	81.8	42.46	.13	38.0	5.36	.13	40.6	53.31	.52	41.3
30.2	12.14	.15	57.3	23.36	.49	80.5	42.33	.12	37.4	5.23	.12	41.0	52.79	.50	40.6
Feb. 9.2	11.99	.14	56.0	22.87	.45	78.8	42.21	.11	36.8	5.11	.12	41.2	52.29	.46	39.3
	11.85	.12	54.4	22.42	.38	76.5	42.10	.09	36.3	4.99	.10	41.2	51.83	.39	37.5
Mar. 1.1	11.73	.08	52.8	22.04	.31	73.8	42.01	.07	36.0	4.89	.08	41.0	51.44	.31	35.3
11.1	11.65	.04	51.0	21.73	.22	70.7	41.94	.03	35.9	4.81	.04	40.6	51.13	.20	32.8
21.0	11.61	.01	49.4	21.51	.14	67.4	41.91	.00	35.9	4.77	.01	39.9	50.93	.10	30.0
31.0	11.62	.05	47.8	21.37	.03	63.8	41.91	.04	36.1	4.76	.03	39.0	50.83	.03	27.2
Apr. 10.0	11.67	.11	46.4	21.34	.06	60.2	41.95	.08	36.6	4.79	.07	37.8	50.86	.15	24.4
20.0	11.78	.17	45.2	21.40	.16	56.4	42.03	.12	37.3	4.86	.11	36.4	51.01	.27	21.6
29.9	11.95	.21	44.4	21.56	.26	52.8	42.15	.17	38.3	4.97	.16	34.8	51.28	.38	19.1
May 9.9	12.16	.26	43.9	21.82	.36	49.2	42.32	.21	39.5	5.13	.19	33.0	51.66	.48	16.9
19.9	12.42	.29	43.7	22.18	.44	45.8	42.53	.24	40.9	5.32	.24	31.1	52.14	.57	15.1
	12.71	.33	43.9	22.62	.52	42.7	42.77	.26	42.5	5.56	.26	29.0	52.71	.64	13.8
June 8.8	13.04	.35	44.5	23.14	.58	39.9	43.03	.29	44.2	5.82	.28	26.9	53.35	.69	12.9
18.8	13.39	.36	45.5	23.72	.62	37.6	43.32	.30	46.1	6.10	.30	24.8	54.04	.72	12.5
28.8	13.75	.36	46.8	24.34	.66	35.7	43.62	.31	48.0	6.40	.31	22.7	54.76	.74	12.6
July 8.8	14.11	.36	48.4	25.00	.66	34.4	43.93	.31	49.9	6.71	.30	20.8	55.50	.73	13.3
	14.47	.34	50.2	25.66	.66	33.6	44.24	.29	51.8	7.01	.30	19.0	56.23	.71	14.4
Aug. 7.7	14.81	.31	52.3	26.32	.63	33.4	44.53	.28	53.5	7.31	.28	17.4	56.94	.68	16.0
17.6	15.12	.29	54.5	26.95	.59	33.7	44.81	.26	55.2	7.59	.26	16.0	57.62	.62	18.0
27.6	15.41	.26	56.9	27.54	.52	34.7	45.07	.22	56.6	7.85	.23	14.9	58.24	.57	20.4
	15.67	.22	59.2	28.06	.44	36.2	45.29	.20	57.9	8.08	.20	14.2	58.81	.49	23.2
Sept. 6.6	15.89	.18	61.6	28.50	.35	38.2	45.49	.16	58.9	8.28	.17	13.7	59.30	.42	26.2
16.6	16.07	.15	63.9	28.85	.24	40.6	45.65	.13	59.6	8.45	.13	13.6	59.72	.34	29.3
26.5	16.22	.10	66.2	29.09	.14	43.3	45.78	.09	60.2	8.58	.10	13.7	60.06	.25	32.6
Oct. 6.5	16.32	.06	68.3	29.23	.02	46.3	45.87	.07	60.4	8.68	.07	14.2	60.31	.16	36.0
16.5	16.38	.03	70.2	29.25	.09	49.4	45.94	.03	60.5	8.75	.03	14.9	60.47	.06	39.4
	16.41	.00	72.0	29.16	.19	52.6	45.97	.00	60.3	8.78	.00	15.8	60.53	.02	42.8
Nov. 5.4	16.41	.04	73.5	28.97	.29	55.6	45.97	.02	60.0	8.78	.02	16.8	60.51	.12	45.9
15.4	16.37	.07	74.8	28.68	.37	58.4	45.95	.05	59.5	8.76	.05	17.9	60.39	.20	48.9
25.4	16.30	.09	75.8	28.31	.44	60.9	45.90	.07	58.9	8.71	.07	19.0	60.19	.29	51.5
Dec. 5.3	16.21	.12	76.5	27.87	.50	62.9	45.83	.08	58.2	8.64	.09	20.2	59.90	.36	53.8
	16.09	.14	76.9	27.37	.53	64.4	45.75	.11	57.5	8.55	.11	21.2	59.54	.43	55.6
25.3	15.95	.16	76.9	26.84	.55	65.3	45.64	.11	56.8	8.44	.12	22.2	59.11	.48	56.9
35.3	15.79		76.6	26.29		65.6	45.53		56.0	8.32		23.1	58.63		57.7

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

329

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Piscium.		ν Andromedæ.		π Piscium.		α Eridani. (Achernar.)		ν Piscium.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 1 26	° ' " +14 50	h m 1 30	° ' " +40 54	h m 1 31	° ' " +11 38	h m 1 34	° ' " -57 43	h m 1 36	° ' " + 4 59
	s	"	s	"	s	"	s	"	s	"
Jan. 0.3	12.43	15.6	60.81	53.0	52.32	13.0	2.48	96.8	18.05	16.2
10.3	12.31	15.0	60.63	52.8	52.20	12.4	2.15	97.3	17.94	15.4
20.2	12.18	14.3	60.44	52.3	52.07	11.6	1.80	97.2	17.81	14.7
30.2	12.04	13.5	60.25	51.4	51.94	10.9	1.47	96.5	17.68	14.1
Feb. 9.2	11.91	12.6	60.05	50.2	51.80	10.1	1.14	95.3	17.55	13.5
19.2	11.79	11.8	59.88	48.7	51.68	9.4	0.84	93.6	17.43	13.0
Mar. 1.1	11.68	11.0	59.72	47.0	51.57	8.8	0.58	91.5	17.32	12.6
11.1	11.60	10.2	59.60	45.2	51.49	8.2	0.35	88.9	17.23	12.3
21.1	11.55	9.6	59.52	43.4	51.43	7.7	0.18	86.0	17.17	12.2
31.0	11.54	9.2	59.49	41.5	51.41	7.5	0.07	82.9	17.15	12.3
Apr. 10.0	11.56	8.9	59.52	39.8	51.43	7.4	0.03	79.5	17.16	12.6
20.0	11.64	8.9	59.60	38.3	51.50	7.6	0.05	76.0	17.22	13.2
30.0	11.76	9.1	59.74	37.0	51.61	8.0	0.14	72.5	17.33	14.0
May 9.9	11.92	9.6	59.94	36.0	51.77	8.7	0.30	69.0	17.47	15.1
19.9	12.13	10.4	60.19	35.4	51.96	9.6	0.53	65.5	17.66	16.3
June 29.9	12.37	11.4	60.48	35.2	52.20	10.8	0.82	62.3	17.89	17.8
8.9	12.64	12.7	60.81	35.3	52.46	12.1	1.17	59.3	18.14	19.4
18.8	12.94	14.2	61.17	35.8	52.75	13.7	1.57	56.7	18.42	21.2
28.8	13.25	15.8	61.55	36.8	53.06	15.4	2.00	54.4	18.72	23.0
July 8.8	13.56	17.6	61.93	38.0	53.37	17.2	2.45	52.6	19.02	24.8
18.7	13.88	19.4	62.31	39.5	53.68	19.0	2.92	51.4	19.33	26.7
28.7	14.19	21.3	62.68	41.3	53.98	20.8	3.39	50.6	19.63	28.4
Aug. 7.7	14.48	23.1	63.04	43.4	54.27	22.6	3.84	50.4	19.91	30.1
17.7	14.74	24.9	63.37	45.6	54.54	24.2	4.26	50.8	20.18	31.6
27.6	14.99	26.5	63.67	47.9	54.78	25.8	4.65	51.8	20.42	32.9
Sept. 6.6	15.20	28.0	63.93	50.3	55.00	27.1	4.98	53.3	20.64	33.9
16.6	15.38	29.3	64.16	52.7	55.18	28.3	5.26	55.3	20.82	34.8
26.6	15.52	30.5	64.34	55.1	55.33	29.2	5.48	57.7	20.97	35.4
Oct. 6.5	15.64	31.4	64.49	57.4	55.45	30.0	5.62	60.3	21.09	35.7
16.5	15.72	32.2	64.59	59.6	55.53	30.5	5.70	63.2	21.18	35.8
Nov. 26.5	15.77	32.7	64.66	61.6	55.59	30.9	5.70	66.2	21.23	35.8
5.4	15.79	33.1	64.68	63.5	55.61	31.0	5.64	69.2	21.26	35.5
15.4	15.78	33.2	64.67	65.2	55.61	31.0	5.51	72.1	21.26	35.1
25.4	15.75	33.2	64.62	66.5	55.58	30.9	5.33	74.7	21.23	34.6
Dec. 5.4	15.69	33.1	64.54	67.6	55.53	30.6	5.10	77.0	21.19	34.0
15.3	15.61	32.8	64.43	68.4	55.45	30.1	4.82	78.8	21.11	33.3
25.3	15.51	32.3	64.28	68.8	55.36	29.6	4.52	80.2	21.02	32.6
35.3	15.39	31.8	64.12	68.8	55.24	29.0	4.19	81.0	20.91	31.9

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	♏ Piscium.		ζ Ceti.		β Arietis.		50 Cassiopeiæ.		γ Andromedæ.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 1 40	° ' " + 8 39	h m 1 46	° ' " - 10 49	h m 1 49	° ' " + 20 19	h m 1 54	° ' " + 71 56	h m 1 57	° ' " + 41 51
	s	"	s	"	s	"	s	"	s	"
Jan. 0.3	11.29	39.4	35.70	28.2	11.73	35.6	62.18	53.2	51.19	31.9
	.12	0.7	.12	0.9	.13	0.4	.53	0.9	.16	0.1
10.3	11.17	38.7	35.58	29.1	11.60	35.2	61.65	54.1	51.03	32.0
	.12	0.7	.14	0.7	.13	0.7	.58	0.3	.19	0.3
20.3	11.05	38.0	35.44	29.8	11.47	34.5	61.07	54.4	50.84	31.7
	.14	0.7	.14	0.4	.15	0.7	.60	0.3	.20	0.6
30.2	10.91	37.3	35.30	30.2	11.32	33.8	60.47	54.1	50.64	31.1
	.13	0.7	.14	0.3	.14	0.9	.60	0.9	.21	1.0
Feb. 9.2	10.78	36.6	35.16	30.5	11.18	32.9	59.87	53.2	50.43	30.1
	.13	0.6	.14	0.0	.15	0.9	.56	1.4	.20	1.3
19.2	10.65	36.0	35.02	30.5	11.03	32.0	59.31	51.8	50.23	28.8
	.11	0.5	.12	0.3	.12	1.0	.50	1.9	.18	1.5
Mar. 1.1	10.54	35.5	34.90	30.2	10.91	31.0	58.81	49.9	50.05	27.3
	.09	0.4	.10	0.5	.11	0.9	.43	2.3	.15	1.6
11.1	10.45	35.1	34.80	29.7	10.80	30.1	58.38	47.6	49.90	25.7
	.07	0.3	.07	0.7	.07	0.9	.32	2.6	.11	1.8
21.1	10.38	34.8	34.73	29.0	10.73	29.2	58.06	45.0	49.79	23.9
	.02	0.1	.04	1.0	.04	0.7	.19	2.7	.06	1.8
31.1	10.36	34.7	34.69	28.0	10.69	28.5	57.87	42.3	49.73	22.1
	.01	0.1	.00	1.3	.01	0.6	.07	2.9	.01	1.7
Apr. 10.0	10.37	34.8	34.69	26.7	10.70	27.9	57.80	39.4	49.72	20.4
	.06	0.3	.04	1.4	.05	0.4	.06	2.8	.05	1.6
20.0	10.43	35.1	34.73	25.3	10.75	27.5	57.86	36.6	49.77	18.8
	.10	0.6	.09	1.7	.10	0.1	.20	2.7	.11	1.4
30.0	10.53	35.7	34.82	23.6	10.85	27.4	58.06	33.9	49.88	17.4
	.15	0.8	.13	1.9	.15	0.1	.34	2.4	.17	1.2
May 9.9	10.68	36.5	34.95	21.7	11.00	27.5	58.40	31.5	50.05	16.2
	.19	1.1	.17	2.0	.19	0.4	.45	2.2	.23	0.8
19.9	10.87	37.6	35.12	19.7	11.19	27.9	58.85	29.3	50.28	15.4
	.22	1.2	.21	2.2	.23	0.7	.57	1.7	.27	0.4
29.9	11.09	38.8	35.33	17.5	11.42	28.6	59.42	27.6	50.55	15.0
	.26	1.5	.25	2.1	.27	0.9	.65	1.3	.31	0.2
June 8.9	11.35	40.3	35.58	15.4	11.69	29.5	60.07	26.3	50.86	14.8
	.28	1.6	.27	2.2	.29	1.1	.72	0.8	.35	0.3
18.8	11.63	41.9	35.85	13.2	11.98	30.6	60.79	25.5	51.21	15.1
	.30	1.8	.29	2.2	.31	1.4	.78	0.4	.37	0.6
28.8	11.93	43.7	36.14	11.0	12.29	32.0	61.57	25.1	51.58	15.7
	.31	1.8	.30	2.0	.33	1.6	.81	0.2	.39	1.0
July 8.8	12.24	45.5	36.44	9.0	12.62	33.6	62.38	25.3	51.97	16.7
	.31	1.8	.30	1.8	.32	1.6	.82	0.7	.39	1.2
18.8	12.55	47.3	36.74	7.2	12.94	35.2	63.20	26.0	52.36	17.9
	.30	1.7	.31	1.7	.32	1.8	.81	1.1	.39	1.6
28.7	12.85	49.0	37.05	5.5	13.26	37.0	64.01	27.1	52.75	19.5
	.29	1.7	.29	1.3	.31	1.8	.79	1.6	.37	1.8
Aug. 7.7	13.14	50.7	37.34	4.2	13.57	38.8	64.80	28.7	53.12	21.3
	.27	1.6	.27	1.1	.28	1.7	.74	2.0	.35	1.9
17.7	13.41	52.3	37.61	3.1	13.85	40.5	65.54	30.7	53.47	23.2
	.25	1.4	.25	0.7	.27	1.7	.70	2.3	.33	2.1
27.7	13.66	53.7	37.86	2.4	14.12	42.2	66.24	33.0	53.80	25.3
	.22	1.2	.22	0.4	.23	1.7	.63	2.7	.29	2.3
Sept. 6.6	13.88	54.9	38.08	2.0	14.35	43.9	66.87	35.7	54.09	27.6
	.18	1.0	.19	0.1	.21	1.5	.55	3.0	.26	2.2
16.6	14.06	55.9	38.27	1.9	14.56	45.4	67.42	38.7	54.35	29.8
	.16	0.8	.16	0.3	.17	1.4	.46	3.1	.22	2.3
26.6	14.22	56.7	38.43	2.2	14.73	46.8	67.88	41.8	54.57	32.1
	.13	0.6	.13	0.6	.14	1.2	.38	3.3	.19	2.3
Oct. 6.5	14.35	57.3	38.56	2.8	14.87	48.0	68.26	45.1	54.76	34.4
	.09	0.3	.09	0.8	.11	1.0	.28	3.4	.14	2.1
16.5	14.44	57.6	38.65	3.6	14.98	49.0	68.54	48.5	54.90	36.5
	.06	0.2	.06	1.0	.08	0.8	.17	3.3	.11	2.1
26.5	14.50	57.8	38.71	4.6	15.06	49.8	68.71	51.8	55.01	38.6
	.03	0.1	.03	1.2	.05	0.7	.07	3.3	.06	1.9
Nov. 5.5	14.53	57.7	38.74	5.8	15.11	50.5	68.78	55.1	55.07	40.5
	.01	0.2	.00	1.3	.01	0.5	.03	3.1	.02	1.8
15.4	14.54	57.5	38.74	7.1	15.12	51.0	68.75	58.2	55.09	42.3
	.03	0.3	.03	1.3	.01	0.3	.14	2.9	.01	1.5
25.4	14.51	57.2	38.71	8.4	15.11	51.3	68.61	61.1	55.08	43.8
	.04	0.4	.05	1.4	.04	0.1	.25	2.6	.06	1.2
Dec. 5.4	14.47	56.8	38.66	9.8	15.07	51.4	68.36	63.7	55.02	45.0
	.07	0.6	.08	1.2	.07	0.1	.34	2.1	.09	1.0
15.3	14.40	56.2	38.58	11.0	15.00	51.3	68.02	65.8	54.93	46.0
	.09	0.6	.10	1.1	.09	0.2	.43	1.8	.12	0.6
25.3	14.31	55.6	38.48	12.1	14.91	51.1	67.59	67.6	54.81	46.6
	.11	0.6	.11	1.0	.11	0.3	.51	1.2	.16	0.3
35.3	14.20	55.0	38.37	13.1	14.80	50.8	67.08	68.8	54.65	46.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Arietis.		<i>β</i> Trianguli.		<i>ξ</i> ¹ Ceti.		<i>γ</i> Trianguli.		67 Ceti.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 2 I	° ' +22 59	h m 2 3	° ' +34 31	h m 2 7	° ' + 8 22	h m 2 II	° ' +33 23	h m 2 I 2	° ' - 6 52
	s	"	s	"	s	"	s	"	s	"
Jan. 0.3	37.13 ^{.12}	48.8 ^{.03}	40.92 ^{.14}	21.1 ^{.01}	46.65 ^{.11}	60.4 ^{.07}	27.52 ^{.13}	33.5 ^{.00}	4.13 ^{.11}	43.2 ^{.09}
10.3	37.01 ^{.14}	48.5 ^{.05}	40.78 ^{.17}	21.0 ^{.03}	46.54 ^{.13}	59.7 ^{.07}	27.39 ^{.16}	33.5 ^{.04}	4.02 ^{.13}	44.1 ^{.07}
20.3	36.87 ^{.15}	48.0 ^{.08}	40.61 ^{.17}	20.7 ^{.07}	46.41 ^{.14}	59.0 ^{.06}	27.23 ^{.17}	33.1 ^{.05}	3.89 ^{.14}	44.8 ^{.06}
30.2	36.72 ^{.16}	47.2 ^{.08}	40.44 ^{.18}	20.0 ^{.09}	46.27 ^{.14}	58.4 ^{.06}	27.06 ^{.18}	32.6 ^{.09}	3.75 ^{.15}	45.4 ^{.04}
Feb. 9.2	36.56 ^{.15}	46.4 ^{.09}	40.26 ^{.18}	19.1 ^{.11}	46.13 ^{.14}	57.8 ^{.06}	26.88 ^{.18}	31.7 ^{.10}	3.60 ^{.14}	45.8 ^{.02}
19.2	36.41 ^{.13}	45.5 ^{.10}	40.08 ^{.16}	18.0 ^{.13}	45.99 ^{.13}	57.2 ^{.05}	26.70 ^{.16}	30.7 ^{.13}	3.46 ^{.14}	46.0 ^{.00}
Mar. 1.2	36.28 ^{.12}	44.5 ^{.10}	39.92 ^{.13}	16.7 ^{.14}	45.86 ^{.11}	56.7 ^{.04}	26.54 ^{.14}	29.4 ^{.13}	3.32 ^{.12}	46.0 ^{.03}
11.1	36.16 ^{.09}	43.5 ^{.10}	39.79 ^{.10}	15.3 ^{.14}	45.75 ^{.09}	56.3 ^{.03}	26.40 ^{.11}	28.1 ^{.14}	3.20 ^{.09}	45.7 ^{.05}
21.1	36.07 ^{.04}	42.5 ^{.09}	39.69 ^{.06}	13.9 ^{.15}	45.66 ^{.05}	56.0 ^{.01}	26.29 ^{.07}	26.7 ^{.13}	3.11 ^{.06}	45.2 ^{.07}
31.1	36.03 ^{.01}	41.6 ^{.07}	39.63 ^{.02}	12.4 ^{.13}	45.61 ^{.01}	55.9 ^{.01}	26.22 ^{.01}	25.4 ^{.13}	3.05 ^{.02}	44.5 ^{.10}
Apr. 10.0	36.02 ^{.04}	40.9 ^{.06}	39.61 ^{.05}	11.1 ^{.13}	45.60 ^{.03}	56.0 ^{.04}	26.21 ^{.03}	24.1 ^{.12}	3.03 ^{.02}	43.5 ^{.12}
20.0	36.06 ^{.09}	40.3 ^{.03}	39.66 ^{.09}	9.8 ^{.10}	45.63 ^{.07}	56.4 ^{.05}	26.24 ^{.08}	22.9 ^{.09}	3.05 ^{.06}	42.3 ^{.14}
30.0	36.15 ^{.14}	40.0 ^{.01}	39.75 ^{.15}	8.8 ^{.07}	45.70 ^{.12}	56.9 ^{.08}	26.32 ^{.14}	22.0 ^{.07}	3.11 ^{.10}	40.9 ^{.16}
May 10.0	36.29 ^{.19}	39.9 ^{.02}	39.90 ^{.20}	8.1 ^{.05}	45.82 ^{.17}	57.7 ^{.09}	26.46 ^{.20}	21.3 ^{.05}	3.21 ^{.16}	39.3 ^{.18}
19.9	36.48 ^{.22}	40.1 ^{.05}	40.10 ^{.25}	7.6 ^{.01}	45.99 ^{.20}	58.6 ^{.12}	26.66 ^{.23}	20.8 ^{.01}	3.37 ^{.19}	37.5 ^{.19}
29.9	36.70 ^{.26}	40.6 ^{.07}	40.35 ^{.29}	7.5 ^{.02}	46.19 ^{.24}	59.8 ^{.14}	26.89 ^{.28}	20.7 ^{.02}	3.56 ^{.22}	35.6 ^{.21}
June 8.9	36.96 ^{.29}	41.3 ^{.10}	40.64 ^{.32}	7.7 ^{.05}	46.43 ^{.26}	61.2 ^{.16}	27.17 ^{.31}	20.9 ^{.05}	3.78 ^{.26}	33.5 ^{.20}
18.9	37.25 ^{.32}	42.3 ^{.12}	40.96 ^{.34}	8.2 ^{.08}	46.69 ^{.29}	62.8 ^{.16}	27.48 ^{.34}	21.4 ^{.08}	4.04 ^{.28}	31.5 ^{.21}
28.8	37.57 ^{.32}	43.5 ^{.14}	41.30 ^{.35}	9.0 ^{.11}	46.98 ^{.30}	64.4 ^{.17}	27.82 ^{.34}	22.2 ^{.10}	4.32 ^{.29}	29.4 ^{.20}
July 8.8	37.89 ^{.33}	44.9 ^{.16}	41.65 ^{.36}	10.1 ^{.13}	47.28 ^{.31}	66.1 ^{.17}	28.16 ^{.36}	23.2 ^{.13}	4.61 ^{.30}	27.4 ^{.18}
18.8	38.22 ^{.33}	46.5 ^{.16}	42.01 ^{.36}	11.4 ^{.16}	47.59 ^{.31}	67.8 ^{.17}	28.52 ^{.35}	24.5 ^{.15}	4.91 ^{.30}	25.6 ^{.17}
28.7	38.55 ^{.31}	48.1 ^{.18}	42.37 ^{.34}	13.0 ^{.18}	47.90 ^{.31}	69.5 ^{.17}	28.87 ^{.35}	26.0 ^{.17}	5.21 ^{.30}	23.9 ^{.15}
Aug. 7.7	38.86 ^{.30}	49.9 ^{.18}	42.71 ^{.33}	14.8 ^{.18}	48.19 ^{.29}	71.2 ^{.15}	29.22 ^{.32}	27.7 ^{.18}	5.51 ^{.28}	22.4 ^{.12}
17.7	39.16 ^{.27}	51.6 ^{.17}	43.04 ^{.30}	16.6 ^{.20}	48.48 ^{.26}	72.7 ^{.13}	29.54 ^{.31}	29.5 ^{.19}	5.79 ^{.26}	21.2 ^{.08}
27.7	39.43 ^{.25}	53.3 ^{.17}	43.34 ^{.28}	18.6 ^{.20}	48.74 ^{.24}	74.0 ^{.11}	29.85 ^{.28}	31.4 ^{.19}	6.05 ^{.24}	20.4 ^{.06}
Sept. 6.6	39.68 ^{.22}	55.0 ^{.16}	43.62 ^{.25}	20.6 ^{.19}	48.98 ^{.21}	75.1 ^{.09}	30.13 ^{.25}	33.3 ^{.19}	6.29 ^{.21}	19.8 ^{.03}
16.6	39.90 ^{.19}	56.6 ^{.14}	43.87 ^{.21}	22.5 ^{.20}	49.19 ^{.18}	76.0 ^{.08}	30.38 ^{.21}	35.2 ^{.18}	6.50 ^{.18}	19.5 ^{.01}
26.6	40.09 ^{.16}	58.0 ^{.13}	44.08 ^{.17}	24.5 ^{.19}	49.37 ^{.15}	76.8 ^{.05}	30.59 ^{.19}	37.0 ^{.18}	6.68 ^{.15}	19.6 ^{.03}
Oct. 6.6	40.25 ^{.13}	59.3 ^{.12}	44.25 ^{.14}	26.4 ^{.18}	49.52 ^{.12}	77.3 ^{.02}	30.78 ^{.14}	38.8 ^{.17}	6.83 ^{.11}	19.9 ^{.07}
16.5	40.38 ^{.09}	60.5 ^{.09}	44.39 ^{.11}	28.2 ^{.16}	49.64 ^{.09}	77.5 ^{.01}	30.92 ^{.12}	40.5 ^{.16}	6.94 ^{.09}	20.6 ^{.08}
26.5	40.47 ^{.06}	61.4 ^{.08}	44.50 ^{.07}	29.8 ^{.15}	49.73 ^{.06}	77.6 ^{.01}	31.04 ^{.07}	42.1 ^{.14}	7.03 ^{.06}	21.4 ^{.11}
Nov. 5.5	40.53 ^{.03}	62.2 ^{.07}	44.57 ^{.03}	31.3 ^{.13}	49.79 ^{.03}	77.5 ^{.02}	31.11 ^{.05}	43.5 ^{.13}	7.09 ^{.03}	22.5 ^{.11}
15.4	40.56 ^{.00}	62.9 ^{.04}	44.60 ^{.00}	32.6 ^{.12}	49.82 ^{.00}	77.3 ^{.04}	31.16 ^{.00}	44.8 ^{.10}	7.12 ^{.01}	23.6 ^{.12}
25.4	40.56 ^{.03}	63.3 ^{.03}	44.60 ^{.04}	33.8 ^{.09}	49.82 ^{.02}	76.9 ^{.05}	31.16 ^{.02}	45.8 ^{.09}	7.11 ^{.03}	24.8 ^{.12}
Dec. 5.4	40.53 ^{.06}	63.6 ^{.01}	44.56 ^{.07}	34.7 ^{.06}	49.80 ^{.06}	76.4 ^{.06}	31.14 ^{.07}	46.7 ^{.06}	7.08 ^{.05}	26.0 ^{.12}
15.4	40.47 ^{.09}	63.7 ^{.00}	44.49 ^{.10}	35.3 ^{.04}	49.74 ^{.07}	75.8 ^{.06}	31.07 ^{.09}	47.3 ^{.04}	7.03 ^{.03}	27.2 ^{.12}
25.3	40.38 ^{.11}	63.7 ^{.03}	44.39 ^{.13}	35.7 ^{.01}	49.67 ^{.10}	75.2 ^{.06}	30.98 ^{.12}	47.7 ^{.01}	6.95 ^{.11}	28.4 ^{.10}
35.3	40.27	63.4	44.26	35.8	49.57	74.6	30.86	47.8	6.84	29.4

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Hydri.			ι Cassiopeiae.			ξ Ceti.			μ Hydri.			δ Ceti.		
	Right Ascension.		Declina- tion South.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion South.	Right Ascension.		Declina- tion South.
	h m	s	'	h m	s	'	h m	s	'	h m	s	'	h m	s	'
	2 19	-69	6	2 20	+66	57	2 22	+ 8	0	2 33	-79	31	2 34	- 0	5
	s	"	"	s	"	"	s	"	"	s	"	"	s	"	"
Jan. 0.3	60.37	.55	51.0	57.88	.38	45.3	55.28	.10	62.4	47.36	1.18	105.0	26.06	.10	53.9
10.3	59.82	.58	51.9	57.50	.42	46.3	55.18	.13	61.8	46.18	1.24	105.9	25.96	.12	54.8
20.3	59.24	.59	52.2	57.08	.45	46.8	55.05	.13	61.1	44.94	1.27	106.3	25.84	.14	55.5
30.2	58.65	.59	52.0	56.63	.47	46.7	54.92	.15	60.5	43.67	1.25	106.0	25.70	.15	56.2
Feb. 9.2	58.06	.56	51.1	56.16	.45	46.1	54.77	.15	59.9	42.42	1.22	105.1	25.55	.15	56.7
	19.2	.53	49.7	55.71	.42	45.0	54.62	.14	59.3	41.20	1.13	103.7	25.40	.14	57.1
Mar. 1.2	56.97	.47	47.8	55.29	.36	43.4	54.48	.12	58.8	40.07	1.04	101.8	25.26	.13	57.3
11.1	56.50	.41	45.4	54.93	.30	41.4	54.36	.09	58.5	39.03	.92	99.4	25.13	.11	57.4
21.1	56.09	.33	42.6	54.63	.20	39.1	54.27	.07	58.3	38.11	.76	96.6	25.02	.08	57.2
31.1	55.76	.23	39.5	54.43	.11	36.6	54.20	.03	58.2	37.35	.60	93.5	24.94	.04	56.9
Apr. 10.1	55.53	.14	36.1	54.32	.01	34.0	54.17	.02	58.3	36.75	.41	90.1	24.90	.00	56.3
20.0	55.39	.04	32.6	54.33	.11	31.3	54.19	.06	58.6	36.34	.23	86.6	24.90	.04	55.6
30.0	55.35	.06	28.9	54.44	.22	28.8	54.25	.10	59.1	36.11	.03	83.0	24.94	.10	54.6
May 10.0	55.41	.17	25.2	54.66	.32	26.4	54.35	.15	59.9	36.08	.17	79.3	25.04	.13	53.4
19.9	55.58	.27	21.6	54.98	.42	24.2	54.50	.19	60.9	36.25	.36	75.7	25.17	.17	52.0
	29.9	.37	18.1	55.40	.49	22.5	54.69	.23	62.0	36.61	.54	72.3	25.34	.22	50.4
June 8.9	56.22	.44	14.9	55.89	.57	21.1	54.92	.26	63.4	37.15	.72	69.1	25.56	.24	48.7
18.9	56.66	.52	11.9	56.46	.61	20.1	55.18	.28	64.9	37.87	.86	66.2	25.80	.27	46.9
28.8	57.18	.58	9.4	57.07	.65	19.6	55.46	.30	66.5	38.73	.99	63.6	26.07	.29	45.1
July 8.8	57.76	.62	7.3	57.72	.67	19.6	55.76	.30	68.2	39.72	1.08	61.6	26.36	.30	43.2
	18.8	.64	5.7	58.39	.67	20.0	56.06	.31	69.8	40.80	1.16	60.0	26.66	.30	41.5
28.8	59.02	.64	4.6	59.06	.66	20.8	56.37	.30	71.5	41.06	1.18	59.0	26.96	.29	39.8
Aug. 7.7	59.66	.63	4.2	59.72	.64	22.1	56.67	.28	73.1	43.14	1.18	58.6	27.25	.29	38.3
17.7	60.29	.59	4.3	60.36	.60	23.8	56.95	.27	74.5	44.32	1.13	58.8	27.54	.27	37.0
27.7	60.88	.55	5.1	60.96	.55	25.8	57.22	.25	75.8	45.45	1.05	59.5	27.81	.25	35.9
Sept. 6.6	61.43	.47	6.5	61.51	.50	28.2	57.47	.22	76.9	46.50	.92	60.9	28.06	.22	35.1
16.6	61.90	.40	8.4	62.01	.44	30.8	57.69	.19	77.8	47.42	.78	62.8	28.28	.20	34.6
26.6	62.30	.30	10.7	62.45	.38	33.7	57.88	.17	78.4	48.20	.60	65.2	28.48	.17	34.3
Oct. 6.6	62.60	.20	13.5	62.83	.29	36.6	58.05	.13	78.8	48.80	.40	68.0	28.65	.14	34.3
16.5	62.80	.09	16.5	63.12	.23	39.7	58.18	.11	79.0	49.20	.18	71.1	28.79	.12	34.6
	26.5	.02	19.8	63.35	.14	42.8	58.29	.08	79.1	49.38	.04	74.4	28.91	.08	35.1
Nov. 5.5	62.87	.13	23.1	63.49	.05	45.9	58.37	.04	79.0	49.34	.26	77.8	28.99	.05	35.8
15.5	62.74	.22	26.3	63.54	.03	48.9	58.41	.02	78.7	49.08	.48	81.0	29.04	.03	36.6
25.4	62.52	.33	29.3	63.51	.12	51.7	58.43	.01	78.2	48.60	.68	84.1	29.07	.01	37.5
Dec. 5.4	62.19	.40	32.1	63.39	.20	54.2	58.42	.04	77.7	47.92	.85	86.9	29.06	.04	38.4
	15.4	.47	34.4	63.19	.27	56.4	58.38	.07	77.1	47.07	1.00	89.2	29.02	.06	39.4
25.3	61.32	.52	36.2	62.92	.35	58.2	58.31	.10	76.5	46.07	1.12	91.1	28.96	.09	40.4
35.3	60.80		37.5	62.57		59.5	58.21		75.8	44.95		92.4	28.87		41.3

FIXED STARS, 1901.

333

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	θ Persei.		γ Ceti.		σ Arietis.		47 Cephei.		ε Arietis.												
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.											
	h m 2 37	° +48 48	h m 2 38	° + 2 49	h m 2 46	° +14 40	h m 2 52	° +79 1	h m 2 53	° +20 56											
	s	"	s	"	s	"	s	"	s	"											
Jan. 0.3	28.67	.18	49.5	0.6	11.85	.10	8.4	0.8	3.35	.09	31.3	0.5	61.39	.79	57.0	1.7	34.92	.10	45.9	0.3	
10.3	28.49	.21	50.1	0.3	11.75	.12	7.6	0.8	3.26	.09	30.8	0.5	61.39	.91	58.7	1.7	34.82	.10	45.6	0.3	
20.3	28.28	.21	50.4	0.3	11.63	.12	6.8	0.8	3.14	.12	30.3	0.5	60.48	.91	59.9	1.2	34.70	.12	45.2	0.4	
30.3	28.05	.23	50.2	0.2	11.50	.13	6.2	0.6	3.00	.14	29.8	0.5	59.49	.99	60.5	0.6	34.55	.15	44.8	0.4	
Feb. 9.2	27.80	.25	49.6	0.6	11.35	.15	5.6	0.6	2.84	.16	29.2	0.6	58.45	1.04	60.5	0.0	34.39	.16	44.2	0.6	
		.25		1.0		.15		0.4		.15		0.7		1.03		0.6				0.7	
19.2	27.55	.24	48.6	1.2	11.20	.15	5.2	0.3	2.69	.16	28.5	0.6	57.42	.99	59.9	1.2	34.23	.16	43.5	0.7	
Mar. 1.2	27.31	.21	47.4	1.6	11.05	.13	4.9	0.3	2.53	.16	27.9	0.6	56.43	.99	58.7	1.2	34.07	.16	42.8	0.7	
11.2	27.10	.21	45.8	1.6	10.92	.13	4.7	0.2	2.39	.14	27.3	0.6	55.53	.90	57.0	1.7	33.92	.15	42.0	0.8	
21.1	26.93	.17	44.0	1.8	10.81	.11	4.7	0.0	2.39	.11	27.3	0.5	55.53	.77	57.0	2.2	33.92	.13	42.0	0.7	
31.1	26.80	.13	44.0	1.9	10.81	.08	4.7	0.2	2.28	.09	26.8	0.5	54.76	.60	54.8	2.5	33.79	.10	41.3	0.7	
		.06	42.1	1.9	10.73	.05	4.9	0.4	2.19	.05	26.4	0.3	54.16	.41	52.3	2.7	33.69	.05	40.6	0.5	
Apr. 10.1	26.74	.01	40.2	1.9	10.68	.00	5.3	0.6	2.14	.00	26.1	0.0	53.75	.20	49.6	2.9	33.64	.02	40.1	0.5	
20.0	26.73	.07	38.3	1.8	10.68	.05	5.9	0.8	2.14	.04	26.1	0.0	53.55	.01	46.7	3.0	33.62	.04	39.6	0.5	
30.0	26.80	.13	36.5	1.8	10.73	.08	6.7	1.0	2.18	.04	26.2	0.1	53.56	.24	43.7	2.8	33.66	.03	39.3	0.3	
May 10.0	26.93	.20	34.8	1.7	10.81	.13	7.7	1.2	2.27	.09	26.5	0.3	53.80	.44	40.9	3.0	33.66	.08	39.3	0.1	
20.0	27.13	.26	33.4	1.4	10.94	.18	8.9	1.4	2.40	.13	27.0	0.5	54.24	.64	38.2	2.7	33.74	.14	39.2	0.1	
			1.0				1.4			.17		0.7			2.5		33.88	.18	39.3	0.4	
29.9	27.39	.31	32.4	0.8	11.12	.21	10.3	1.5	2.57	.23	27.7	0.9	54.88	.82	35.7	2.1	34.06	.22	39.7	0.5	
June 8.9	27.70	.35	31.6	0.8	11.33	.24	11.8	1.7	2.80	.25	28.6	0.9	55.70	.97	33.6	1.7	34.28	.25	40.2	0.8	
18.9	28.05	.39	31.2	0.4	11.57	.27	13.5	1.8	3.05	.25	29.7	1.1	56.67	1.10	31.9	1.7	34.53	.28	41.0	0.5	
28.9	28.44	.42	31.1	0.1	11.84	.29	15.3	1.8	3.32	.27	31.0	1.3	57.77	1.19	31.9	1.3	34.53	.28	41.0	1.0	
July 8.8	28.86	.42	31.5	0.4	12.13	.30	17.0	1.7	3.62	.30	32.4	1.4	58.96	1.27	30.6	0.8	34.81	.30	42.0	1.2	
			0.6				1.7			.30		1.5		1.27		0.4		35.11	.32	43.2	1.2
18.8	29.28	.44	32.1	1.1	12.43	.30	18.7	1.7	3.92	.32	33.9	1.5	60.23	1.30	29.8	0.4	35.11	.32	43.2	1.2	
28.8	29.72	.44	33.2	1.2	12.73	.30	20.4	1.5	4.24	.32	35.4	1.5	61.53	1.31	29.4	0.2	35.43	.32	44.4	1.4	
Aug. 7.7	30.14	.42	34.4	1.6	13.03	.28	21.9	1.3	4.54	.30	36.9	1.4	62.84	1.29	29.6	0.6	35.75	.32	45.8	1.4	
17.7	30.56	.39	36.0	1.8	13.31	.27	23.2	1.1	4.84	.30	38.3	1.4	64.13	1.29	30.2	1.1	36.07	.31	47.2	1.4	
27.7	30.95	.37	37.8	2.0	13.58	.26	24.3	0.9	5.13	.29	39.6	1.3	65.38	1.25	31.3	1.6	36.38	.30	48.6	1.4	
										.26		1.2		1.19		1.9		36.68	.28	50.0	1.3
Sept. 6.7	31.32	.33	39.8	2.1	13.84	.23	25.2	0.7	5.39	.25	40.8	1.1	66.57	1.11	32.9	1.9	36.96	.25	51.3	1.3	
16.6	31.65	.30	41.9	2.2	14.07	.20	25.9	0.4	5.64	.22	41.9	0.9	67.68	.99	34.8	2.3	37.21	.23	52.6	1.3	
26.6	31.95	.27	44.1	2.3	14.27	.17	26.3	0.1	5.86	.19	42.8	0.7	68.67	.87	37.1	2.7	37.44	.21	53.7	1.0	
Oct. 6.6	32.22	.22	46.4	2.4	14.44	.15	26.4	0.1	6.05	.16	43.5	0.5	69.54	.74	39.8	2.9	37.65	.18	54.7	0.9	
16.6	32.44	.17	48.8	2.3	14.59	.12	26.3	0.4	6.21	.13	44.0	0.4	70.28	.57	42.7	3.1	37.83	.14	55.6	0.7	
26.5	32.61	.13	51.1	2.2	14.71	.09	25.9	0.5	6.34	.11	44.4	0.2	70.85	.40	45.8	3.3	37.97	.12	56.3	0.5	
Nov. 5.5	32.74	.09	53.3	2.1	14.80	.05	25.4	0.6	6.45	.07	44.6	0.1	71.25	.22	49.1	3.4	38.09	.08	56.8	0.5	
15.5	32.83	.03	55.4	1.9	14.85	.03	24.8	0.8	6.52	.04	44.7	0.1	71.47	.02	52.5	3.3	38.17	.06	57.3	0.3	
25.4	32.86	.01	57.3	1.7	14.88	.00	24.0	0.8	6.56	.01	44.6	0.2	71.49	.16	55.8	3.3	38.23	.06	57.6	0.2	
Dec. 5.4	32.85	.06	59.0	1.5	14.88	.03	23.2	0.8	6.57	.02	44.4	0.2	71.33	.36	59.1	3.1	38.24	.01	57.8	0.0	
15.4	32.79	.11	60.5	1.2	14.85	.06	22.4	0.9	6.55	.05	44.2	0.4	70.97	.54	62.2	2.8	38.23	.05	57.8	0.0	
25.4	32.68	.16	61.7	0.8	14.79	.09	21.5	0.8	6.50	.09	43.8	0.4	70.43	.71	65.0	2.5	38.18	.08	57.8	0.2	
35.3	32.52		62.5		14.70		20.7		6.41		43.4		69.72		67.5	2.1	38.10		57.6		

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ceti.		<i>β</i> Persei.		48 Cephei (H.)		<i>ζ</i> Arietis.		<i>α</i> Persei.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 2 57	° ' " + 3 42	h m 3 1	° ' " + 40 34	h m 3 7	° ' " + 77 22	h m 3 9	° ' " + 20 40	h m 3 17	° ' " + 49 30
	s	"	s	"	s	"	s	"	s	"
Jan. 0.4	7.97 ⁰⁹	5.8 ⁰⁷	45.93 ⁺¹³	38.3 ⁰⁴	51.84 ^{.63}	32.3 ^{1.8}	14.60 ^{.09}	44.3 ^{0.2}	18.00 ^{.14}	43.5 ^{0.9}
10.3	7.88 ^{.12}	5.1 ^{0.8}	45.80 ^{.16}	38.7 ^{0.2}	51.21 ^{.75}	34.1 ^{1.3}	14.51 ^{.12}	44.1 ^{0.3}	17.86 ^{.19}	44.4 ^{0.6}
20.3	7.76 ^{.14}	4.3 ^{0.6}	45.64 ^{.19}	38.9 ^{0.1}	50.46 ^{.83}	35.4 ^{0.8}	14.39 ^{.14}	43.8 ^{0.4}	17.67 ^{.22}	45.0 ^{0.3}
30.3	7.62 ^{.14}	3.7 ^{0.6}	45.45 ^{.20}	38.8 ^{0.4}	49.63 ^{.89}	36.2 ^{0.1}	14.25 ^{.16}	43.4 ^{0.6}	17.45 ^{.26}	45.3 ^{0.2}
Feb. 9.2	7.48 ^{.16}	3.1 ^{0.5}	45.25 ^{.22}	38.4 ^{0.7}	48.74 ^{.90}	36.3 ^{0.4}	14.09 ^{.17}	42.8 ^{0.6}	17.19 ^{.26}	45.1 ^{0.5}
19.2	7.32 ^{.16}	2.6 ^{0.3}	45.03 ^{.21}	37.7 ^{1.0}	47.84 ^{.87}	35.9 ^{1.0}	13.92 ^{.16}	42.2 ^{0.6}	16.93 ^{.26}	44.6 ^{1.0}
Mar. 1.2	7.16 ^{.14}	2.3 ^{0.2}	44.82 ^{.20}	36.7 ^{1.2}	46.97 ^{.81}	34.9 ^{1.6}	13.76 ^{.16}	41.6 ^{0.7}	16.67 ^{.25}	43.6 ^{1.2}
11.2	7.02 ^{.12}	2.1 ^{0.0}	44.62 ^{.17}	35.5 ^{1.3}	46.16 ^{.70}	33.3 ^{1.9}	13.60 ^{.14}	40.9 ^{0.7}	16.42 ^{.21}	42.4 ^{1.5}
21.1	6.90 ^{.10}	2.1 ^{0.1}	44.45 ^{.13}	34.2 ^{1.5}	45.46 ^{.56}	31.4 ^{2.4}	13.46 ^{.11}	40.2 ^{0.6}	16.21 ^{.18}	40.9 ^{1.6}
31.1	6.80 ^{.06}	2.2 ^{0.3}	44.32 ^{.08}	32.7 ^{1.5}	44.90 ^{.41}	29.0 ^{2.7}	13.35 ^{.07}	39.6 ^{0.6}	16.03 ^{.12}	39.3 ^{1.8}
Apr. 10.1	6.74 ^{.01}	2.5 ^{0.5}	44.24 ^{.02}	31.2 ^{1.5}	44.49 ^{.23}	26.3 ^{2.8}	13.28 ^{.03}	39.0 ^{0.4}	15.91 ^{.06}	37.5 ^{1.9}
20.1	6.73 ^{.02}	3.0 ^{0.7}	44.22 ^{.03}	29.7 ^{1.4}	44.26 ^{.04}	23.5 ^{2.9}	13.25 ^{.02}	38.6 ^{0.3}	15.85 ^{.01}	35.6 ^{1.8}
30.0	6.75 ^{.07}	3.7 ^{1.0}	44.25 ^{.09}	28.3 ^{1.3}	44.22 ^{.15}	20.6 ^{2.8}	13.27 ^{.07}	38.3 ^{0.1}	15.86 ^{.08}	33.8 ^{1.8}
May 10.0	6.82 ^{.12}	4.7 ^{1.1}	44.34 ^{.14}	27.0 ^{1.0}	44.37 ^{.34}	17.8 ^{2.7}	13.34 ^{.12}	38.2 ^{0.1}	15.94 ^{.14}	32.0 ^{1.6}
20.0	6.94 ^{.15}	5.8 ^{1.3}	44.48 ^{.21}	26.0 ^{0.8}	44.71 ^{.52}	15.1 ^{2.5}	13.46 ^{.16}	38.3 ^{0.3}	16.08 ^{.21}	30.4 ^{1.3}
29.9	7.09 ^{.20}	7.1 ^{1.5}	44.69 ^{.25}	25.2 ^{0.5}	45.23 ^{.67}	12.6 ^{2.2}	13.62 ^{.21}	38.6 ^{0.5}	16.29 ^{.27}	29.1 ^{1.1}
June 8.9	7.29 ^{.23}	8.6 ^{1.5}	44.94 ^{.30}	24.7 ^{0.3}	45.90 ^{.82}	10.4 ^{1.8}	13.83 ^{.24}	39.1 ^{0.7}	16.56 ^{.32}	28.0 ^{0.8}
18.9	7.52 ^{.26}	10.1 ^{1.7}	45.24 ^{.33}	24.4 ^{0.1}	46.72 ^{.93}	8.6 ^{1.4}	14.07 ^{.27}	39.8 ^{0.9}	16.88 ^{.36}	27.2 ^{0.4}
28.9	7.78 ^{.28}	11.8 ^{1.6}	45.57 ^{.36}	24.5 ^{0.4}	47.65 ^{1.03}	7.2 ^{1.0}	14.34 ^{.30}	40.7 ^{1.0}	17.24 ^{.40}	26.8 ^{0.1}
July 8.8	8.06 ^{.30}	13.4 ^{1.7}	45.93 ^{.37}	24.9 ^{0.6}	48.68 ^{1.10}	6.2 ^{0.5}	14.64 ^{.31}	41.7 ^{1.2}	17.64 ^{.42}	26.7 ^{0.2}
18.8	8.36 ^{.30}	15.1 ^{1.6}	46.30 ^{.38}	25.5 ^{0.9}	49.78 ^{1.14}	5.7 ^{0.1}	14.95 ^{.32}	42.9 ^{1.3}	18.06 ^{.43}	26.9 ^{0.5}
28.8	8.66 ^{.29}	16.7 ^{1.5}	46.68 ^{.38}	26.4 ^{1.2}	50.92 ^{1.16}	5.6 ^{0.5}	15.27 ^{.31}	44.2 ^{1.3}	18.49 ^{.44}	27.4 ^{0.8}
Aug. 7.8	8.95 ^{.29}	18.2 ^{1.3}	47.06 ^{.38}	27.6 ^{1.3}	52.08 ^{1.15}	6.1 ^{0.9}	15.58 ^{.32}	45.5 ^{1.3}	18.93 ^{.43}	28.2 ^{1.1}
17.7	9.24 ^{.28}	19.5 ^{1.1}	47.44 ^{.36}	28.9 ^{1.5}	53.23 ^{1.13}	7.0 ^{1.3}	15.90 ^{.30}	46.8 ^{1.3}	19.36 ^{.42}	29.3 ^{1.3}
27.7	9.52 ^{.26}	20.6 ^{0.9}	47.80 ^{.34}	30.4 ^{1.6}	54.36 ^{1.07}	8.3 ^{1.8}	16.20 ^{.28}	48.1 ^{1.2}	19.78 ^{.40}	30.6 ^{1.6}
Sept. 6.7	9.78 ^{.25}	21.5 ^{0.6}	48.14 ^{.31}	32.0 ^{1.8}	55.43 ^{1.02}	10.1 ^{2.1}	16.48 ^{.27}	49.3 ^{1.2}	20.18 ^{.38}	32.2 ^{1.7}
16.6	10.03 ^{.21}	22.1 ^{0.4}	48.45 ^{.29}	33.8 ^{1.7}	56.45 ^{.92}	12.2 ^{2.4}	16.75 ^{.24}	50.5 ^{1.0}	20.56 ^{.35}	33.9 ^{1.9}
26.6	10.24 ^{.19}	22.5 ^{0.2}	48.74 ^{.26}	35.5 ^{1.8}	57.37 ^{.82}	14.6 ^{2.8}	16.99 ^{.22}	51.5 ^{0.9}	20.91 ^{.31}	35.8 ^{2.0}
Oct. 6.6	10.43 ^{.17}	22.7 ^{0.1}	49.00 ^{.22}	37.3 ^{1.8}	58.19 ^{.71}	17.4 ^{3.0}	17.21 ^{.19}	52.4 ^{0.8}	21.22 ^{.28}	37.8 ^{2.0}
16.6	10.60 ^{.14}	22.6 ^{0.3}	49.22 ^{.19}	39.1 ^{1.8}	58.90 ^{.57}	20.4 ^{3.1}	17.40 ^{.17}	53.2 ^{0.6}	21.50 ^{.24}	39.8 ^{2.2}
26.5	10.74 ^{.10}	22.3 ^{0.5}	49.41 ^{.15}	40.9 ^{1.7}	59.47 ^{.43}	23.5 ^{3.3}	17.57 ^{.13}	53.8 ^{0.5}	21.74 ^{.19}	42.0 ^{2.0}
Nov. 5.5	10.84 ^{.08}	21.8 ^{0.7}	49.56 ^{.11}	42.6 ^{1.6}	59.90 ^{.27}	26.8 ^{3.3}	17.70 ^{.10}	54.3 ^{0.4}	21.93 ^{.15}	44.0 ^{2.1}
15.5	10.92 ^{.05}	21.1 ^{0.7}	49.67 ^{.07}	44.2 ^{1.5}	60.17 ^{.11}	30.1 ^{3.2}	17.80 ^{.07}	54.7 ^{0.3}	22.08 ^{.10}	46.1 ^{2.0}
25.5	10.97 ^{.01}	20.4 ^{0.8}	49.74 ^{.03}	45.7 ^{1.3}	60.28 ^{.07}	33.3 ^{3.1}	17.87 ^{.03}	55.0 ^{0.1}	22.18 ^{.04}	48.1 ^{1.8}
Dec. 5.4	10.98 ^{.01}	19.6 ^{0.9}	49.77 ^{.02}	47.0 ^{1.2}	60.21 ^{.23}	36.4 ^{2.8}	17.90 ^{.00}	55.1 ^{0.1}	22.22 ^{.01}	49.9 ^{1.7}
15.4	10.97 ^{.05}	18.7 ^{0.8}	49.75 ^{.06}	48.2 ^{0.9}	59.98 ^{.41}	39.2 ^{2.6}	17.90 ^{.03}	55.2 ^{0.1}	22.21 ^{.06}	51.6 ^{1.4}
25.4	10.92 ^{.08}	17.9 ^{0.8}	49.69 ^{.11}	49.1 ^{0.7}	59.57 ^{.55}	41.8 ^{2.1}	17.87 ^{.07}	55.1 ^{0.1}	22.15 ^{.12}	53.0 ^{1.1}
35.3	10.84	17.1	49.58	49.8	59.02	43.9	17.80	55.0	22.03	54.1

FIXED STARS, 1901.

335

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ϵ Hydri.		ζ Tauri.		ϵ Eridani.		δ Persei.		γ Camelopardalis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 3 18	° ' -77 44	h m 3 25	° ' +12 35	h m 3 28	° ' - 9 47	h m 3 35	° ' +47 28	h m 3 39	° ' +71 1
	s	"	s	"	s	"	s	"	s	"
Jan. 0.4	27.72	75.8	26.38	53.0	17.74	39.6	55.33	25.5	59.57	50.7
10.3	26.79	77.4	26.30	52.5	17.65	40.8	55.22	26.4	59.25	52.6
20.3	25.77	78.4	26.20	52.0	17.54	41.9	55.05	27.1	58.82	54.1
30.3	24.70	78.9	26.06	51.5	17.40	42.8	54.85	27.5	58.32	55.1
Feb. 9.3	23.60	78.8	25.91	51.0	17.24	43.4	54.61	27.4	57.77	55.6
19.2	22.49	78.1	25.75	50.5	17.07	43.8	54.36	27.1	57.18	55.5
Mar. 1.2	21.42	76.8	25.58	50.0	16.89	43.9	54.11	26.4	56.59	54.9
11.2	20.41	75.1	25.42	49.6	16.73	43.7	53.86	25.4	56.03	53.7
21.2	19.48	72.9	25.28	49.2	16.58	43.3	53.64	24.1	55.52	52.1
31.1	18.66	70.2	25.17	48.9	16.45	42.6	53.45	22.6	55.09	50.2
Apr. 10.1	17.96	67.3	25.08	48.8	16.35	41.7	53.32	20.9	54.75	47.9
20.1	17.41	64.1	25.04	48.8	16.29	40.6	53.24	19.2	54.53	45.3
30.0	17.02	60.6	25.04	49.0	16.28	39.2	53.22	17.5	54.43	42.7
May 10.0	16.79	57.1	25.09	49.3	16.31	37.5	53.27	15.8	54.46	40.1
20.0	16.74	53.5	25.19	49.8	16.38	35.8	53.39	14.3	54.63	37.5
30.0	16.86	50.0	25.33	50.5	16.50	33.8	53.57	13.0	54.92	35.1
June 8.9	17.15	46.6	25.51	51.4	16.66	31.8	53.81	11.9	55.32	32.8
18.9	17.60	43.4	25.73	52.5	16.86	29.6	54.10	11.1	55.83	30.9
28.9	18.20	40.5	25.98	53.7	17.09	27.5	54.43	10.6	56.44	29.4
July 8.9	18.94	37.9	26.25	54.9	17.35	25.5	54.80	10.3	57.11	28.2
18.8	19.79	35.8	26.54	56.3	17.62	23.6	55.20	10.4	57.85	27.4
28.8	20.72	34.3	26.85	57.6	17.91	21.8	55.61	10.8	58.63	27.1
Aug. 7.8	21.72	33.3	27.15	58.9	18.20	20.3	56.03	11.4	59.43	27.2
17.7	22.74	32.8	27.45	60.2	18.49	19.1	56.45	12.3	60.24	27.7
27.7	23.76	33.0	27.75	61.3	18.77	18.2	56.86	13.4	61.04	28.6
Sept. 6.7	24.74	33.8	28.03	62.3	19.05	17.6	57.26	14.7	61.82	29.9
16.7	25.65	35.3	28.29	63.2	19.30	17.4	57.64	16.2	62.57	31.5
26.6	26.46	37.2	28.53	63.8	19.53	17.5	57.99	17.8	63.27	33.5
Oct. 6.6	27.14	39.7	28.76	64.3	19.74	18.0	58.32	19.6	63.92	35.8
16.6	27.67	42.5	28.95	64.6	19.93	18.9	58.61	21.4	64.49	38.3
26.6	28.03	45.7	29.12	64.7	20.09	20.0	58.87	23.3	64.99	41.0
Nov. 5.5	28.21	49.0	29.26	64.7	20.22	21.3	59.08	25.2	65.39	43.9
15.5	28.19	52.4	29.38	64.5	20.31	22.8	59.25	27.1	65.70	46.9
25.5	27.98	55.8	29.46	64.2	20.38	24.4	59.38	28.9	65.90	49.8
Dec. 5.4	27.59	58.9	29.50	63.9	20.41	26.1	59.45	30.6	65.98	52.7
15.4	27.02	61.8	29.51	63.5	20.41	27.6	59.47	32.2	65.94	55.4
25.4	26.30	64.2	29.49	63.0	20.38	29.1	59.43	33.6	65.79	57.9
35.4	25.44	66.2	29.44	62.5	20.31	30.5	59.34	34.8	65.52	60.1

FIXED STARS, 1901.
(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Tauri.		ζ Persei.		γ Hydri.		ϵ Persei.		γ Eridani.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 3 4 I	° ' " +23 47	h m 3 47	° ' " +31 35	h m 3 48	° ' " -7 32	h m 3 5 I	° ' " +39 43	h m 3 53	° ' " -13 47
	s 38.13	" 60.6	s 56.87	" 28.3	s 48.88	" 47.2	s 15.22	" 32.9	s 26.50	" 29.7
Jan. 0.4	38.13	60.6	56.87	28.3	48.88	47.2	15.22	32.9	26.50	29.7
10.3	38.06 .07	60.6 .00	56.80 .07	28.7 .04	48.22 .66	49.3 2.1	15.14 .08	33.6 .07	26.42 .08	31.2 1.5
20.3	37.96 .10	60.5 .01	56.69 .11	28.8 .01	47.47 .75	50.9 1.6	15.02 .12	34.1 .05	26.31 .11	32.5 1.3
30.3	37.82 .14	60.3 .02	56.54 .15	28.8 .00	46.65 .82	51.9 1.0	14.85 .17	34.4 .03	26.18 .13	33.5 1.0
Feb. 9.3	37.66 .16	59.9 .04	56.37 .17	28.7 .01	45.78 .87	52.3 .04	14.66 .19	34.4 0.0	26.02 .16	33.5 0.8
	37.66 .17	59.9 .04	56.37 .19	28.7 .04	45.78 .88	52.3 0.1	14.66 .22	34.4 0.3	26.02 .18	34.3 0.4
	37.49 .18	59.5 .06	56.18 .20	28.3 .06	44.90 .88	52.2 .08	14.44 .22	34.1 .06	25.84 .18	34.7 0.2
Mar. 1.2	37.31 .18	58.9 .06	55.98 .19	27.7 .07	44.02 .85	51.4 1.2	14.22 .22	33.5 .08	25.66 .18	34.9 0.1
11.2	37.13 .16	58.3 .07	55.79 .18	27.0 .08	43.17 .79	50.2 1.8	14.00 .20	32.7 1.0	25.48 .17	34.8 0.5
21.2	36.97 .13	57.6 .07	55.61 .15	26.2 .09	42.38 .73	48.4 2.2	13.80 .17	31.7 1.2	25.31 .14	34.3 0.7
31.1	36.84 .11	56.9 .06	55.46 .11	25.3 .10	41.65 .63	46.2 2.6	13.63 .13	30.5 1.2	25.17 .12	33.6 1.0
	36.73 .05	56.3 .06	55.35 .07	24.3 1.0	41.02 .53	43.6 3.0	13.50 .09	29.3 1.4	25.05 .08	32.6 1.2
Apr. 10.1	36.68 .02	55.7 .05	55.28 .02	23.3 .09	40.49 .40	40.6 3.2	13.41 .02	27.9 1.3	24.97 .04	31.4 1.6
20.1	36.66 .04	55.2 .03	55.26 .03	22.4 .08	40.09 .27	37.4 3.4	13.39 .03	26.6 1.2	24.93 .00	29.8 1.7
May 10.0	36.70 .09	54.9 .02	55.29 .09	21.6 .06	39.82 .14	34.0 3.5	13.42 .09	25.4 1.1	24.93 .05	28.1 1.9
20.0	36.79 .14	54.7 .00	55.38 .13	21.0 .05	39.68 .01	30.5 3.5	13.51 .14	24.3 1.0	24.98 .10	26.2 2.1
	36.93 .18	54.7 .02	55.51 .19	20.5 .03	39.69 .14	27.0 3.5	13.65 .20	23.3 .07	25.08 .13	24.1 2.2
June 8.9	37.11 .22	54.9 .04	55.70 .23	20.2 .00	39.83 .29	23.5 3.4	13.85 .25	22.6 .05	25.21 .18	21.9 2.2
18.9	37.33 .26	55.3 .06	55.93 .27	20.2 .01	40.12 .41	20.1 3.1	14.10 .29	22.1 .03	25.39 .21	19.7 2.2
28.9	37.59 .28	55.9 .07	56.20 .30	20.3 .03	40.53 .53	17.0 2.8	14.39 .32	21.8 .01	25.60 .25	17.5 2.2
July 8.9	37.87 .30	56.6 .08	56.50 .32	20.6 .06	41.06 .62	14.2 2.4	14.71 .35	21.7 .02	25.85 .26	15.3 2.0
	38.17 .32	57.4 1.0	56.82 .33	21.2 .07	41.68 .72	11.8 2.0	15.06 .36	21.9 .04	26.11 .28	13.3 1.8
Aug. 7.8	38.49 .32	58.4 1.1	57.15 .34	21.9 .08	42.40 .77	9.8 1.4	15.42 .37	22.3 .07	26.39 .29	11.5 1.6
17.8	38.81 .32	59.5 1.1	57.49 .35	22.7 1.0	43.17 .82	8.4 .09	15.79 .38	23.0 .08	26.68 .29	9.9 1.3
27.7	39.13 .32	60.6 1.0	57.84 .33	23.7 1.0	43.99 .83	7.5 .02	16.17 .37	23.8 1.0	26.97 .29	8.6 .09
	39.45 .30	61.6 1.1	58.17 .33	24.7 1.1	44.82 .81	7.3 0.4	16.54 .36	24.8 1.1	27.26 .28	7.7 0.6
	39.75 .29	62.7 1.0	58.50 .31	25.8 1.1	45.63 .79	7.7 1.0	16.90 .34	25.9 1.2	27.54 .27	7.1 0.1
Sept. 16.7	40.04 .27	63.7 1.0	58.81 .30	26.9 1.1	46.42 .71	8.7 1.6	17.24 .33	27.1 1.3	27.81 .25	7.0 0.3
26.6	40.31 .25	64.7 .08	59.11 .27	28.0 1.1	47.13 .64	10.3 2.2	17.57 .30	28.4 1.3	28.06 .23	7.3 0.6
Oct. 6.6	40.56 .23	65.5 .08	59.38 .25	29.1 1.1	47.77 .52	12.5 2.6	17.87 .28	29.7 1.4	28.29 .21	7.9 1.0
16.6	40.79 .20	66.3 .07	59.63 .22	30.2 1.1	48.29 .40	15.1 3.0	18.15 .25	31.1 1.5	28.50 .18	8.9 1.3
	40.99 .17	67.0 .05	59.85 .19	31.3 1.0	48.69 .26	18.1 3.3	18.40 .21	32.6 1.4	28.68 .15	10.2 1.6
Nov. 5.5	41.16 .14	67.5 .05	60.04 .16	32.3 .09	48.95 .11	21.4 3.4	18.61 .17	34.0 1.4	28.83 .13	11.8 1.8
15.5	41.30 .10	68.0 .04	60.20 .12	33.2 .08	49.06 .04	24.8 3.5	18.78 .14	35.4 1.3	28.96 .09	13.6 1.9
25.5	41.40 .07	68.4 .03	60.32 .08	34.0 .08	49.02 .19	28.3 3.3	18.92 .09	36.7 1.3	29.05 .05	15.5 1.9
Dec. 5.5	41.47 .03	68.7 .02	60.40 .04	34.8 .07	48.83 .34	31.6 3.2	19.01 .04	38.0 1.1	29.10 .02	17.4 1.9
	41.50 .00	68.9 .02	60.44 .01	35.5 .06	48.49 .47	34.8 2.8	19.05 .01	39.1 1.1	29.12 .02	19.3 1.8
15.4	41.50 .05	69.1 .00	60.43 .04	36.1 .04	48.02 .60	37.6 2.4	19.04 .05	40.2 .08	29.10 .05	21.1 1.6
25.4	41.45	69.1	60.39	36.5	47.42	40.0	18.99	41.0	29.05	22.7

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

337

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	A ¹ Tauri.		ε Persei.		α ¹ Eridani.		γ Tauri.		ε Tauri.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 3 58.	° ' " +21 48	h m 4 1	° ' " +47 26	h m 4 7	° ' " - 7 5	h m 4 14	° ' " +15 23	h m 4 22	° ' " +18 57
	s	"	s	"	s	"	s	"	s	"
Jan. 0.4	52.75	43.9 ^{0.1}	31.42	61.1 ^{1.1}	3.93	48.4 ^{1.4}	11.74	19.4 ^{0.4}	52.41	39.8 ^{0.2}
10.4	52.70 ^{0.05}	43.8 ^{0.1}	31.33 ^{0.09}	62.2 ^{0.9}	3.87 ^{0.06}	49.8 ^{1.1}	11.70 ^{0.04}	19.0 ^{0.4}	52.38 ^{0.03}	39.6 ^{0.2}
20.4	52.61 ^{0.09}	43.7 ^{0.3}	31.18 ^{0.15}	63.1 ^{0.5}	3.78 ^{0.09}	50.9 ^{1.0}	11.62 ^{0.08}	18.6 ^{0.4}	52.30 ^{0.08}	39.4 ^{0.2}
30.3	52.48 ^{0.13}	43.4 ^{0.3}	30.99 ^{0.19}	63.6 ^{0.5}	3.65 ^{0.13}	51.9 ^{1.0}	11.51 ^{0.11}	18.2 ^{0.4}	52.19 ^{0.11}	39.2 ^{0.2}
Feb. 9.3	52.32 ^{0.16}	43.1 ^{0.3}	30.77 ^{0.22}	63.9 ^{0.3}	3.50 ^{0.15}	52.6 ^{0.7}	11.36 ^{0.15}	17.9 ^{0.3}	52.05 ^{0.14}	38.9 ^{0.3}
	52.32 ^{0.17}	43.1 ^{0.3}	30.77 ^{0.23}	63.9 ^{0.1}	3.50 ^{0.16}	52.6 ^{0.6}	11.36 ^{0.16}	17.9 ^{0.4}	52.05 ^{0.17}	38.9 ^{0.3}
19.3	52.15	42.8 ^{0.5}	30.52	63.8 ^{0.5}	3.34	53.2	11.20	17.5	51.88	38.6
Mar. 1.2	51.97	42.3 ^{0.5}	30.26	63.3 ^{0.8}	3.16	53.4 ^{0.2}	11.02	17.1 ^{0.4}	51.70	38.2 ^{0.4}
11.2	51.79	41.8 ^{0.6}	30.00	62.5 ^{1.0}	2.98	53.5 ^{0.1}	10.85	16.7 ^{0.3}	51.52	37.8 ^{0.4}
21.2	51.63	41.2 ^{0.5}	29.76	61.5 ^{1.3}	2.82	53.3 ^{0.2}	10.68	16.4 ^{0.3}	51.35	37.4 ^{0.4}
31.2	51.48	40.7 ^{0.5}	29.56	60.2 ^{1.5}	2.67	52.8 ^{0.5}	10.53	16.1 ^{0.3}	51.19	37.0 ^{0.4}
	51.48 ^{0.11}	40.7 ^{0.5}	29.56 ^{0.17}	60.2 ^{1.5}	2.67 ^{0.12}	52.8 ^{0.7}	10.53 ^{0.12}	16.1 ^{0.3}	51.19 ^{0.13}	37.0 ^{0.4}
Apr 10.1	51.37	40.2 ^{0.5}	29.39	58.7 ^{1.6}	2.55	52.1 ^{0.9}	10.41	15.8 ^{0.1}	51.06	36.6 ^{0.2}
20.1	51.30	39.7 ^{0.4}	29.28	57.1 ^{1.7}	2.46	51.2 ^{1.1}	10.33	15.7 ^{0.0}	50.97	36.4 ^{0.2}
30.1	51.27	39.3 ^{0.2}	29.23	55.4 ^{1.6}	2.42	50.1 ^{1.4}	10.29	15.7 ^{0.1}	50.92	36.2 ^{0.1}
May 10.0	51.29	39.1 ^{0.1}	29.25	53.8 ^{1.6}	2.41	48.7 ^{1.5}	10.29	15.8 ^{0.2}	50.92	36.1 ^{0.0}
20.0	51.36	39.0 ^{0.1}	29.33	52.2 ^{1.4}	2.46	47.2 ^{1.7}	10.34	16.0 ^{0.4}	50.96	36.1 ^{0.2}
	51.36 ^{0.12}	39.0 ^{0.1}	29.33 ^{0.15}	52.2 ^{1.4}	2.46 ^{0.08}	47.2 ^{1.7}	10.34 ^{0.10}	16.0 ^{0.4}	50.96 ^{0.10}	36.1 ^{0.2}
30.0	51.48	39.1 ^{0.2}	29.48	50.8 ^{1.2}	2.54	45.5 ^{1.9}	10.44	16.4 ^{0.6}	51.06	36.3 ^{0.3}
June 9.0	51.64	39.3 ^{0.4}	29.68	49.6 ^{1.0}	2.67	43.6 ^{1.9}	10.58	17.0 ^{0.7}	51.19	36.6 ^{0.4}
18.9	51.84	39.7 ^{0.6}	29.94	48.6 ^{0.8}	2.84	41.7 ^{1.9}	10.76	17.7 ^{0.8}	51.37	37.0 ^{0.6}
28.9	52.08	40.3 ^{0.7}	30.25	47.8 ^{0.4}	3.05	39.8 ^{1.9}	10.98	18.5 ^{0.9}	51.59	37.6 ^{0.8}
July 8.9	52.35	41.0 ^{0.8}	30.60	47.4 ^{0.2}	3.28	37.9 ^{1.8}	11.23	19.4 ^{1.0}	51.83	38.4 ^{0.8}
	52.35 ^{0.29}	41.0 ^{0.8}	30.60 ^{0.38}	47.4 ^{0.2}	3.28 ^{0.25}	37.9 ^{1.8}	11.23 ^{0.27}	19.4 ^{1.0}	51.83 ^{0.27}	38.4 ^{0.8}
18.9	52.64	41.8 ^{0.9}	30.98	47.2 ^{0.0}	3.53	36.1 ^{1.7}	11.50	20.4 ^{1.1}	52.10	39.2 ^{0.8}
28.8	52.95	42.7 ^{1.0}	31.38	47.2 ^{0.4}	3.81	34.4 ^{1.6}	11.79	21.5 ^{1.0}	52.39	40.0 ^{0.9}
Aug 7.8	53.26	43.7 ^{1.0}	31.80	47.6 ^{0.6}	4.09	32.8 ^{1.2}	12.08	22.5 ^{1.0}	52.70	40.9 ^{0.8}
17.8	53.58	44.7 ^{1.0}	32.22	48.2 ^{0.8}	4.38	31.6 ^{1.0}	12.39	23.5 ^{0.9}	53.00	41.7 ^{0.9}
27.8	53.89	45.7 ^{0.9}	32.63	49.0 ^{1.0}	4.67	30.6 ^{0.6}	12.69	24.4 ^{0.8}	53.31	42.6 ^{0.8}
	53.89 ^{0.30}	45.7 ^{0.9}	32.63 ^{0.41}	49.0 ^{1.0}	4.67 ^{0.28}	30.6 ^{0.6}	12.69 ^{0.30}	24.4 ^{0.8}	53.31 ^{0.30}	42.6 ^{0.8}
Sept. 6.7	54.19	46.6 ^{0.9}	33.04	50.0 ^{1.2}	4.95	30.0 ^{0.3}	12.99	25.2 ^{0.6}	53.61	43.4 ^{0.6}
16.7	54.49	47.5 ^{0.7}	33.44	51.2 ^{1.3}	5.21	29.7 ^{0.0}	13.27	25.8 ^{0.5}	53.91	44.0 ^{0.6}
26.7	54.77	48.2 ^{0.7}	33.81	52.5 ^{1.5}	5.47	29.7 ^{0.4}	13.55	26.3 ^{0.4}	54.19	44.6 ^{0.4}
Oct. 6.6	55.02	48.9 ^{0.6}	34.16	54.0 ^{1.6}	5.71	30.1 ^{0.8}	13.81	26.7 ^{0.2}	54.46	45.0 ^{0.4}
16.6	55.26	49.5 ^{0.5}	34.48	55.6 ^{1.7}	5.93	30.9 ^{1.0}	14.04	26.9 ^{0.1}	54.71	45.4 ^{0.2}
	55.26 ^{0.21}	49.5 ^{0.5}	34.48 ^{0.29}	55.6 ^{1.7}	5.93 ^{0.19}	30.9 ^{1.0}	14.04 ^{0.22}	26.9 ^{0.1}	54.71 ^{0.23}	45.4 ^{0.2}
26.6	55.47	50.0 ^{0.3}	34.77	57.3 ^{1.8}	6.12	31.9 ^{1.2}	14.26	27.0 ^{0.0}	54.94	45.6 ^{0.1}
Nov. 5.6	55.66	50.3 ^{0.3}	35.03	59.0 ^{1.7}	6.29	33.1 ^{1.4}	14.45	27.0 ^{0.2}	55.15	45.7 ^{0.0}
15.5	55.82	50.6 ^{0.2}	35.23	60.8 ^{1.8}	6.43	34.5 ^{1.6}	14.62	26.8 ^{0.2}	55.32	45.7 ^{0.0}
25.5	55.94	50.8 ^{0.2}	35.39	62.6 ^{1.7}	6.54	36.1 ^{1.6}	14.75	26.6 ^{0.3}	55.47	45.7 ^{0.1}
Dec. 5.5	56.03	51.0 ^{0.1}	35.50	64.3 ^{1.6}	6.61	37.7 ^{1.6}	14.85	26.3 ^{0.3}	55.58	45.6 ^{0.1}
	56.03 ^{0.04}	51.0 ^{0.1}	35.50 ^{0.06}	64.3 ^{1.6}	6.61 ^{0.04}	37.7 ^{1.6}	14.85 ^{0.06}	26.3 ^{0.3}	55.58 ^{0.07}	45.6 ^{0.1}
15.4	56.07	51.1 ^{0.0}	35.56	65.9 ^{1.4}	6.65	39.3 ^{1.5}	14.91	26.0 ^{0.4}	55.65	45.5 ^{0.2}
25.4	56.08	51.1 ^{0.0}	35.56	67.3 ^{1.3}	6.65	40.8 ^{1.4}	14.93	25.6 ^{0.4}	55.68	45.3 ^{0.2}
35.4	56.05	51.1 ^{0.0}	35.49	68.6	6.61	42.2	14.91	25.3	55.67	45.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Mensæ.		m Persei.		α Tauri. (Aldebaran.)		τ Tauri.		α Camelopardalis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 4 24	° ' " -80 26	h m 4 26	° ' " +42 51	h m 4 30	° ' " +16 18	h m 4 36	° ' " +22 45	h m 4 44	° ' " +66 10
	s	"	s	"	s	"	s	"	s	"
Jan. 0.4	44.37	58.7	29.83	13.6	16.63	36.8	20.56	61.8	17.38	34.5
10.4	43.36	61.1	29.78	14.6	16.61	36.5	20.54	61.8	17.26	36.7
20.4	42.19	63.1	29.67	15.4	16.54	36.1	20.47	61.8	17.04	38.6
30.3	40.88	64.6	29.52	16.0	16.43	35.8	20.36	61.7	16.74	40.1
Feb. 9.3	39.47	65.4	29.33	16.3	16.29	35.5	20.22	61.6	16.36	41.2
19.3	38.00	65.8	29.11	16.4	16.13	35.1	20.05	61.4	15.93	41.9
Mar. 1.3	36.51	65.6	28.87	16.1	15.95	34.8	19.87	61.1	15.46	42.0
11.2	35.04	64.8	28.63	15.6	15.77	34.4	19.68	60.7	14.99	41.7
21.2	33.62	63.6	28.40	14.8	15.60	34.1	19.50	60.3	14.53	40.9
31.2	32.30	61.8	28.19	13.8	15.44	33.8	19.33	59.8	14.10	39.7
Apr. 10.1	31.10	59.6	28.02	12.6	15.31	33.5	19.19	59.4	13.74	38.0
20.1	30.04	57.1	27.89	11.3	15.21	33.4	19.09	58.9	13.45	36.1
30.1	29.16	54.2	27.82	10.0	15.16	33.3	19.03	58.5	13.25	33.9
May 10.1	28.48	51.2	27.81	8.6	15.15	33.3	19.01	58.2	13.15	31.6
20.0	28.00	47.9	27.86	7.3	15.18	33.5	19.05	58.0	13.14	29.2
30.0	27.74	44.5	27.96	6.1	15.27	33.8	19.13	58.0	13.25	26.8
June 9.0	27.71	41.1	28.13	5.0	15.39	34.3	19.25	58.0	13.46	24.5
19.0	27.90	37.7	28.35	4.1	15.56	34.8	19.42	58.2	13.75	22.3
28.9	28.31	34.5	28.61	3.4	15.77	35.5	19.63	58.5	14.14	20.4
July 8.9	28.93	31.6	28.92	2.9	16.00	36.3	19.88	59.0	14.61	18.7
18.9	29.73	29.0	29.25	2.6	16.27	37.2	20.15	59.5	15.14	17.3
28.8	30.70	26.7	29.61	2.6	16.55	38.1	20.43	60.1	15.72	16.3
Aug. 7.8	31.81	25.0	29.99	2.8	16.84	39.0	20.74	60.8	16.34	15.6
17.8	33.01	23.8	30.38	3.1	17.14	39.9	21.05	61.6	16.99	15.2
27.8	34.29	23.1	30.77	3.7	17.44	40.7	21.36	62.3	17.65	15.2
Sept. 6.7	35.58	23.1	31.15	4.4	17.74	41.4	21.68	62.9	18.32	15.6
16.7	36.86	23.7	31.53	5.3	18.04	42.0	21.98	63.5	18.99	16.3
26.7	38.07	25.0	31.89	6.3	18.32	42.5	22.28	64.1	19.63	17.3
Oct. 6.7	39.17	26.8	32.24	7.4	18.59	42.8	22.56	64.6	20.25	18.7
16.6	40.13	29.1	32.56	8.6	18.84	43.0	22.83	65.0	20.84	20.3
26.6	40.91	31.9	32.86	9.9	19.07	43.0	23.08	65.3	21.38	22.2
Nov. 5.6	41.47	35.0	33.12	11.2	19.28	42.9	23.30	65.5	21.85	24.4
15.5	41.80	38.3	33.35	12.6	19.46	42.8	23.49	65.7	22.26	26.7
25.5	41.88	41.8	33.54	14.0	19.61	42.5	23.66	65.9	22.59	29.2
Dec. 5.5	41.70	45.2	33.67	15.4	19.72	42.2	23.78	66.0	22.83	31.7
15.5	41.28	48.5	33.76	16.7	19.80	41.9	23.87	66.1	22.98	34.3
25.4	40.62	51.6	33.79	18.0	19.84	41.6	23.91	66.1	23.02	36.8
35.4	39.74	54.3	33.77	19.1	19.83	41.3	23.91	66.2	22.96	39.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>ι</i> Tauri.		<i>ι</i> Aurigæ.		<i>ζ</i> Aurigæ.		<i>ι</i> Orionis.		<i>β</i> Eridani.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 4 45	° ' " +18 40	h m 4 50	° ' " +33 0	h m 4 55	° ' " +40 55	h m 4 58	° ' " +15 15	h m 5 2	° ' " - 5 12
Jan. 0.4	37.29	16.3	35.43	35.0	36.39	55.0	57.05	56.6	61.12	56.9
10.4	37.27 .02	16.1 .02	35.41 .02	35.5 .05	36.37 .02	56.0 1.0	57.05 .00	56.2 .04	61.11 .01	58.3 1.4
20.4	37.21 .06	15.9 .02	35.35 .06	36.0 .05	36.30 .07	56.9 0.9	57.00 .05	55.8 .04	61.05 .06	59.6 1.3
30.4	37.11 .10	15.7 .03	35.24 .11	36.4 .04	36.18 .12	57.6 0.7	56.91 .09	55.5 .03	60.96 .09	60.7 1.1
Feb. 9.3	36.98 .13	15.4 .03	35.09 .15	36.6 .02	36.01 .17	58.1 0.5	56.78 .13	55.2 .03	60.83 .13	61.6 0.9
	16	0.2	18	0.0	21	0.2	15	0.3	16	0.7
19.3	36.82	15.2	34.91	36.6	35.80	58.3	56.63	54.9	60.67	62.3
Mar. 1.3	36.64 .18	14.9 .03	34.70 .21	36.5 .01	35.58 .22	58.3 0.0	56.46 .17	54.6 .03	60.50 .17	62.8 0.5
11.2	36.45 .19	14.6 .03	34.49 .21	36.2 .03	35.34 .24	58.0 0.3	56.27 .19	54.4 .02	60.32 .18	63.0 0.2
21.2	36.27 .18	14.3 .03	34.29 .20	35.7 .05	35.11 .23	57.5 0.5	56.09 .18	54.1 .03	60.13 .19	63.0 0.0
31.2	36.11 .16	14.0 .03	34.10 .19	35.1 .06	34.89 .22	57.5 0.7	55.92 .17	53.9 .02	59.96 .17	62.8 0.2
	14	0.3	17	0.7	18	1.0	14	0.2	15	0.4
Apr. 10.2	35.97	13.7	33.93	34.4	34.71	55.8	55.78	53.7	59.81	62.4
20.1	35.86 .11	13.4 .03	33.81 .12	33.6 .08	34.56 .15	54.8 1.0	55.66 .12	53.6 .01	59.69 .12	61.7 0.7
30.1	35.79 .07	13.2 .02	33.73 .08	32.7 .09	34.46 .10	53.6 1.2	55.58 .08	53.6 .00	59.60 .09	60.8 0.9
May 10.1	35.77 .02	13.1 .01	33.69 .04	31.9 .8	34.42 .04	52.4 1.2	55.54 .04	53.7 .01	59.54 .06	60.8 1.1
20.1	35.79 .02	13.2 .01	33.71 .02	31.1 .8	34.43 .01	51.2 1.2	55.55 .01	53.9 .02	59.54 .00	59.7 1.3
	07	0.1	08	0.7	07	1.2	06	0.3	04	1.4
30.0	35.86	13.3	33.79	30.4	34.50	50.0	55.61	54.2	59.58	57.0
June 9.0	35.97 .11	13.6 .03	33.91 .12	29.8 .6	34.63 .13	48.9 1.1	55.71 .10	54.7 .05	59.66 .08	55.4 1.6
19.0	36.13 .16	14.0 .04	34.08 .17	29.3 .5	34.81 .18	48.0 0.9	55.85 .14	55.2 .05	59.78 .12	53.8 1.6
28.9	36.33 .20	14.5 .05	34.30 .22	29.0 .3	35.03 .22	47.2 0.8	56.03 .18	55.8 .06	59.94 .16	52.0 1.8
July 8.9	36.55 .22	15.1 .06	34.55 .25	28.9 .1	35.30 .27	46.6 0.6	56.24 .21	56.6 .08	60.13 .19	50.3 1.7
	26	0.7	28	0.1	31	0.4	24	0.7	22	1.7
18.9	36.81	15.8	34.83	28.8	35.61	46.2	56.48	57.3	60.35	48.6
28.9	37.09 .28	16.5 .07	35.14 .31	29.0 .2	35.94 .33	46.0 0.2	56.75 .27	58.1 .08	60.59 .24	47.1 1.5
Aug. 7.8	37.38 .29	17.2 .07	35.46 .34	29.2 .2	36.29 .35	45.9 0.1	57.03 .28	58.9 .08	60.85 .26	45.6 1.5
17.8	37.68 .30	18.0 .08	35.80 .34	29.6 .4	36.66 .37	46.0 0.1	57.32 .29	59.7 .08	61.12 .27	44.4 1.2
27.8	37.98 .31	18.7 .06	36.14 .34	30.0 .4	37.04 .38	46.3 0.3	57.61 .29	60.3 .06	61.40 .28	43.5 0.9
				0.6	37	0.4	30	0.6	28	0.7
Sept. 6.8	38.29	19.3	36.48	30.6	37.41	46.7	57.91	60.9	61.68	42.8
16.7	38.59 .30	19.8 .05	36.82 .34	31.1 .5	37.79 .38	47.2 0.5	58.21 .30	61.3 .04	61.96 .28	42.5 0.3
26.7	38.88 .29	20.3 .05	37.15 .33	31.7 .6	38.15 .36	47.9 0.7	58.50 .29	61.6 .03	62.24 .28	42.5 0.0
Oct. 6.7	39.16 .28	20.6 .03	37.47 .32	32.3 .6	38.51 .36	48.6 0.7	58.78 .28	61.8 .02	62.51 .27	42.9 0.4
16.6	39.43 .27	20.7 .01	37.77 .30	33.0 .7	38.84 .33	49.5 0.9	59.05 .27	61.8 .00	62.76 .25	43.6 0.7
	24	0.1	28	0.6	32	0.9	25	0.2	24	0.9
26.6	39.67	20.8	38.05	33.6	39.16	50.4	59.30	61.6	63.00	44.5
Nov. 5.6	39.90 .23	20.8 .00	38.31 .26	34.3 .7	39.45 .29	51.4 1.0	59.53 .23	61.4 .02	63.21 .21	45.8 1.3
15.6	40.10 .20	20.7 .01	38.54 .23	35.0 .7	39.70 .25	52.5 1.1	59.73 .20	61.0 .04	63.40 .19	47.2 1.4
25.5	40.26 .16	20.6 .01	38.74 .20	35.7 .7	39.92 .22	53.6 1.1	59.91 .18	60.6 .04	63.56 .16	48.8 1.6
Dec. 5.5	40.40 .14	20.4 .02	38.89 .15	36.4 .7	40.09 .17	54.8 1.2	60.05 .14	60.2 .04	63.69 .13	50.5 1.7
	09	0.2	11	0.7	13	1.2	11	0.5	10	1.6
15.5	40.49	20.2	39.00	37.1	40.22	56.0	60.16	59.7	63.79	52.1
25.5	40.54 .05	20.0 .02	39.06 .06	37.8 .7	40.29 .07	57.1 1.1	60.22 .06	59.3 .04	63.84 .05	53.7 1.6
35.4	40.55 .01	19.8 .02	39.08 .02	38.4 .6	40.30 .01	58.2 1.1	60.24 .02	58.9 .04	63.85 .01	55.3

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Aurigæ. (<i>Capella</i> .)		<i>β</i> Orionis. (<i>Rigel</i> .)		<i>τ</i> Orionis.		<i>β</i> Tauri.		<i>χ</i> Aurigæ.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 5 9	° ' " +45 53	h m 5 9	° ' " - 8 18	h m 5 12	° ' " - 6 56	h m 5 20	° ' " +28 31	h m 5 26	° ' " +32 7
	s	"	s	"	s	"	s	"	s	"
Jan. 0.4	25.72	51.9	48.94	63.2	50.13	70.5	4.65	24.4	19.78	6.2
10.4	25.71	53.2	48.92	64.8	50.12	72.1	4.66	24.7	19.80	6.7
20.4	25.64	54.4	48.87	66.3	50.07	73.5	4.63	25.1	19.77	7.3
30.4	25.52	55.3	48.78	67.5	49.98	74.7	4.55	25.3	19.69	7.7
Feb. 9.3	25.34	56.1	48.65	68.5	49.85	75.7	4.42	25.5	19.56	8.1
19.3	25.12	56.5	48.49	69.3	49.70	76.4	4.26	25.6	19.40	8.3
Mar. 1.3	24.88	56.7	48.32	69.8	49.52	76.9	4.07	25.6	19.21	8.4
11.3	24.62	56.6	48.13	70.1	49.34	77.2	3.87	25.5	19.00	8.3
21.2	24.36	56.1	47.94	70.1	49.15	77.2	3.67	25.2	18.79	8.1
31.2	24.12	55.4	47.77	69.8	48.98	77.0	3.48	24.8	18.59	7.7
Apr. 10.2	23.90	54.4	47.61	69.3	48.82	76.5	3.31	24.4	18.41	7.2
20.1	23.73	53.3	47.48	68.5	48.69	75.8	3.17	23.8	18.26	6.6
30.1	23.60	52.0	47.38	67.5	48.59	74.9	3.07	23.3	18.15	5.9
May 10.1	23.54	50.5	47.33	66.3	48.53	73.8	3.01	22.7	18.08	5.2
20.1	23.53	49.1	47.31	64.9	48.52	72.4	3.00	22.2	18.06	4.5
30.0	23.58	47.6	47.34	63.3	48.55	70.9	3.04	21.7	18.10	3.8
June 9.0	23.70	46.3	47.41	61.6	48.62	69.3	3.13	21.3	18.18	3.2
19.0	23.87	45.0	47.52	59.8	48.72	67.6	3.26	21.0	18.31	2.6
29.0	24.10	43.8	47.67	58.0	48.87	65.8	3.44	20.8	18.49	2.2
July 8.9	24.37	42.9	47.86	56.1	49.06	64.0	3.66	20.7	18.71	1.9
18.9	24.68	42.1	48.07	54.3	49.27	62.2	3.91	20.7	18.96	1.7
28.9	25.03	41.5	48.31	52.6	49.50	60.6	4.18	20.8	19.24	1.6
Aug. 7.8	25.40	41.1	48.56	51.1	49.76	59.1	4.47	21.0	19.54	1.5
17.8	25.79	40.9	48.83	49.8	50.02	57.9	4.78	21.2	19.85	1.6
27.8	26.19	40.9	49.11	48.8	50.30	56.9	5.10	21.4	20.18	1.7
Sept. 6.8	26.59	41.1	49.39	48.2	50.58	56.2	5.43	21.7	20.52	1.9
16.7	27.00	41.5	49.67	47.8	50.86	55.9	5.75	22.0	20.86	2.2
26.7	27.40	42.0	49.95	47.9	51.14	56.0	6.08	22.3	21.19	2.4
Oct. 6.7	27.79	42.7	50.22	48.3	51.41	56.4	6.39	22.6	21.52	2.7
16.7	28.16	43.5	50.48	49.1	51.67	57.1	6.70	22.8	21.84	3.0
26.6	28.52	44.5	50.72	50.2	51.91	58.1	6.99	23.0	22.15	3.3
Nov. 5.6	28.84	45.6	50.94	51.6	52.14	59.5	7.26	23.3	22.44	3.7
15.6	29.13	46.8	51.13	53.2	52.34	61.0	7.51	23.6	22.70	4.1
25.5	29.39	48.1	51.30	54.9	52.51	62.7	7.73	23.8	22.93	4.5
Dec. 5.5	29.59	49.5	51.43	56.8	52.64	64.5	7.91	24.1	23.12	5.0
15.5	29.74	50.9	51.53	58.6	52.74	66.3	8.05	24.5	23.27	5.6
25.5	29.83	52.3	51.59	60.4	52.80	68.0	8.14	24.8	23.37	6.1
35.4	29.86	53.7	51.60	62.2	52.82	69.7	8.18	25.2	23.42	6.7

FIXED STARS, 1901.

341

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	Groombridge 966.		δ Orionis.		α Leporis.		Groombridge 944.		ε Orionis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 5 26	° ' " +74 58	h m 5 26	° ' " - 0 22	h m 5 28	° ' " -17 53	h m 5 30	° ' " +85 8	h m 5 31	° ' " - 1 15
	s	"	s	"	s	"	s	"	s	"
Jan. 0.5	36.65	44.3	59.16	25.8	24.00	42.3	34.73	53.6	13.63	59.7
10.4	36.56	47.0	59.17	27.1	23.99	44.4	34.30	56.7	13.64	61.1
20.4	36.30	49.5	59.13	28.3	23.94	46.4	33.37	59.5	13.61	62.3
30.4	35.90	51.7	59.06	29.2	23.84	48.0	31.99	62.0	13.54	63.3
Feb. 9.3	35.36	53.5	58.95	30.1	23.71	49.4	30.21	64.0	13.43	64.2
19.3	34.71	54.8	58.80	30.7	23.55	50.4	28.12	65.6	13.28	64.9
Mar. 1.3	33.99	55.6	58.64	31.2	23.36	51.1	25.80	66.6	13.12	65.3
11.3	33.23	55.9	58.46	31.5	23.16	51.5	23.36	67.0	12.94	65.6
21.2	32.46	55.6	58.28	31.6	22.96	51.5	20.90	66.8	12.76	65.7
31.2	31.72	54.8	58.10	31.5	22.77	51.2	18.53	65.9	12.58	65.6
Apr. 10.2	31.05	53.5	57.94	31.2	22.59	50.6	16.33	64.6	12.42	65.4
20.2	30.46	51.8	57.80	30.7	22.43	49.6	14.40	62.7	12.28	64.9
30.1	30.00	49.7	57.70	30.1	22.31	48.4	12.81	60.4	12.18	64.2
May 10.1	29.67	47.3	57.64	29.3	22.23	46.8	11.62	57.8	12.11	63.4
20.1	29.48	44.7	57.62	28.4	22.19	45.1	10.86	55.0	12.08	62.4
30.0	29.45	42.0	57.64	27.3	22.19	43.1	10.55	52.0	12.10	61.3
June 9.0	29.58	39.2	57.70	26.0	22.24	41.0	10.71	48.9	12.15	60.0
19.0	29.86	36.5	57.80	24.6	22.32	38.8	11.33	45.9	12.25	58.6
29.0	30.28	34.0	57.94	23.2	22.45	36.6	12.38	43.0	12.39	57.2
July 8.9	30.83	31.6	58.12	21.8	22.61	34.3	13.85	40.3	12.56	55.7
18.9	31.50	29.5	58.32	20.4	22.81	32.2	15.68	37.8	12.76	54.2
28.9	32.27	27.7	58.55	19.0	23.03	30.1	17.85	35.7	12.99	52.9
Aug. 7.9	33.13	26.2	58.80	17.8	23.28	28.3	20.29	33.9	13.23	51.6
17.8	34.05	25.0	59.06	16.7	23.54	26.8	22.97	32.5	13.49	50.5
27.8	35.02	24.2	59.34	15.9	23.82	25.7	25.82	31.5	13.76	49.6
Sept. 6.8	36.03	23.9	59.62	15.3	24.10	24.9	28.79	31.0	14.04	49.0
16.7	37.06	23.9	59.90	15.0	24.39	24.6	31.82	30.9	14.32	48.7
26.7	38.08	24.3	60.18	15.0	24.67	24.7	34.85	31.2	14.60	48.7
Oct. 6.7	39.08	25.1	60.45	15.2	24.95	25.2	37.84	32.0	14.88	49.0
16.7	40.04	26.3	60.72	15.8	25.22	26.2	40.70	33.3	15.15	49.6
26.6	40.95	27.9	60.97	16.6	25.48	27.6	43.38	35.0	15.40	50.5
Nov. 5.6	41.78	29.8	61.21	17.7	25.71	29.4	45.82	37.1	15.64	51.6
15.6	42.52	32.1	61.43	19.0	25.92	31.4	47.96	39.6	15.86	52.9
25.6	43.14	34.6	61.61	20.3	26.10	33.6	49.72	42.3	16.05	54.4
Dec. 5.5	43.62	37.2	61.77	21.8	26.25	36.0	51.07	45.3	16.21	55.9
15.5	43.96	40.0	61.89	23.3	26.36	38.4	51.94	48.4	16.33	57.4
25.5	44.13	42.9	61.97	24.7	26.42	40.7	52.33	51.6	16.42	58.9
35.4	44.14	45.6	62.00	26.0	26.44	43.0	52.20	54.8	16.45	60.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Columbæ.		κ Orionis.		ν Aurigæ.		δ Doradus.		α Orionis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 5 36	° ' 34 7	h m 5 43	° ' 9 42	h m 5 44	° ' 39 7	h m 5 44	° ' 65 46	h m 5 49	° ' 7 23
	s	"	s	"	s	"	s	"	s	"
Jan. 0.5	6.09	45.1	5.89	23.6	40.70	7.9	38.90	31.0	51.07	13.8
10.4	6.06 ^{.03}	47.8 ^{2.7}	5.90 ^{.01}	25.4 ^{1.8}	40.74 ^{.04}	8.8 ^{0.9}	38.71 ^{.19}	34.4 ^{3.4}	51.11 ^{.04}	12.9 ^{0.9}
20.4	5.98 ^{.08}	50.4 ^{2.6}	5.88 ^{.02}	27.1 ^{1.7}	40.72 ^{.02}	9.8 ^{1.0}	38.43 ^{.28}	37.4 ^{3.0}	51.10 ^{.01}	12.1 ^{0.8}
30.4	5.85 ^{.13}	52.6 ^{2.2}	5.80 ^{.08}	28.5 ^{1.4}	40.64 ^{.08}	10.6 ^{0.8}	38.07 ^{.36}	40.1 ^{2.7}	51.04 ^{.06}	11.4 ^{0.7}
Feb. 9.4	5.68 ^{.17}	54.4 ^{1.8}	5.69 ^{.11}	29.7 ^{1.2}	40.52 ^{.12}	11.4 ^{0.8}	37.63 ^{.44}	42.3 ^{2.2}	50.95 ^{.09}	10.8 ^{0.6}
	5.68 ^{.20}	54.4 ^{1.3}	5.69 ^{.14}	29.7 ^{0.9}	40.52 ^{.17}	11.4 ^{0.5}	37.63 ^{.50}	42.3 ^{1.7}	50.95 ^{.13}	10.8 ^{0.4}
Mar. 19.3	5.48	55.7	5.55	30.6	40.35	11.9	37.13	44.0	50.82	10.4
1.3	5.25 ^{.23}	56.7 ^{1.0}	5.38 ^{.17}	31.3 ^{0.7}	40.14 ^{.21}	12.3 ^{0.4}	36.59 ^{.54}	45.2 ^{1.2}	50.66 ^{.16}	10.0 ^{0.4}
11.3	5.00 ^{.25}	57.2 ^{0.5}	5.19 ^{.19}	31.7 ^{0.4}	39.92 ^{.22}	12.4 ^{0.1}	36.03 ^{.56}	45.8 ^{0.6}	50.48 ^{.18}	9.8 ^{0.2}
21.2	4.76 ^{.24}	57.2 ^{0.0}	5.00 ^{.19}	31.8 ^{0.1}	39.69 ^{.23}	12.3 ^{0.1}	35.45 ^{.58}	45.9 ^{0.1}	50.30 ^{.18}	9.7 ^{0.1}
31.2	4.52 ^{.24}	56.8 ^{0.9}	4.82 ^{.18}	31.6 ^{0.2}	39.46 ^{.23}	12.0 ^{0.3}	34.89 ^{.56}	45.4 ^{0.5}	50.12 ^{.16}	9.7 ^{0.0}
	4.52 ^{.23}	56.8 ^{0.9}	4.82 ^{.18}	31.6 ^{0.4}	39.46 ^{.21}	12.0 ^{0.6}	34.89 ^{.54}	45.4 ^{1.0}	50.12 ^{.16}	9.7 ^{0.1}
Apr. 10.2	4.29	55.9	4.64	31.2	39.25	11.4	34.35	44.4	49.96	9.8
20.2	4.10 ^{.19}	54.6 ^{1.3}	4.50 ^{.14}	30.6 ^{0.6}	39.07 ^{.18}	10.7 ^{0.7}	33.86 ^{.49}	42.9 ^{1.5}	49.81 ^{.15}	9.9 ^{0.1}
30.1	3.93 ^{.17}	53.0 ^{1.6}	4.38 ^{.12}	29.7 ^{0.9}	38.93 ^{.14}	9.9 ^{0.8}	33.42 ^{.44}	41.0 ^{1.9}	49.70 ^{.11}	10.3 ^{0.4}
May 10.1	3.81 ^{.12}	51.0 ^{2.0}	4.29 ^{.09}	28.5 ^{1.2}	38.84 ^{.09}	8.9 ^{1.0}	33.05 ^{.37}	38.6 ^{2.4}	49.62 ^{.08}	10.7 ^{0.4}
20.1	3.73 ^{.08}	48.7 ^{2.3}	4.25 ^{.04}	27.2 ^{1.3}	38.80 ^{.01}	7.9 ^{1.0}	32.75 ^{.30}	35.9 ^{2.7}	49.59 ^{.03}	11.2 ^{0.5}
	3.73 ^{.04}	48.7 ^{2.5}	4.25 ^{.00}	27.2 ^{1.5}	38.80 ^{.01}	7.9 ^{1.1}	32.75 ^{.21}	35.9 ^{3.0}	49.59 ^{.00}	11.2 ^{0.7}
June 30.1	3.69	46.2	4.25	25.7	38.81	6.8	32.54	32.9	49.59	11.9
9.0	3.71 ^{.02}	43.5 ^{2.7}	4.29 ^{.04}	24.0 ^{1.7}	38.88 ^{.07}	5.8 ^{1.0}	32.41 ^{.13}	29.7 ^{3.2}	49.64 ^{.05}	12.7 ^{0.8}
19.0	3.77 ^{.06}	40.7 ^{2.8}	4.37 ^{.08}	22.2 ^{1.8}	39.00 ^{.12}	4.8 ^{1.0}	32.38 ^{.03}	26.4 ^{3.3}	49.73 ^{.09}	13.5 ^{0.8}
29.0	3.88 ^{.11}	37.8 ^{2.9}	4.49 ^{.12}	20.3 ^{1.9}	39.16 ^{.16}	3.9 ^{0.9}	32.44 ^{.06}	23.0 ^{3.4}	49.85 ^{.12}	14.4 ^{0.9}
July 8.9	4.03 ^{.15}	35.0 ^{2.8}	4.64 ^{.15}	18.5 ^{1.8}	39.38 ^{.22}	3.1 ^{0.8}	32.59 ^{.15}	19.7 ^{3.3}	50.02 ^{.17}	15.4 ^{1.0}
	4.03 ^{.20}	35.0 ^{2.7}	4.64 ^{.19}	18.5 ^{1.8}	39.38 ^{.25}	3.1 ^{0.7}	32.59 ^{.24}	19.7 ^{3.1}	50.02 ^{.19}	15.4 ^{1.0}
Aug. 18.9	4.23	32.3	4.83	16.7	39.63	2.4	32.83	16.6	50.21	16.4
28.9	4.45 ^{.22}	29.8 ^{2.5}	5.04 ^{.21}	15.0 ^{1.7}	39.91 ^{.28}	1.8 ^{0.6}	33.15 ^{.32}	13.6 ^{3.0}	50.43 ^{.22}	17.3 ^{0.9}
7.9	4.70 ^{.25}	27.6 ^{2.2}	5.28 ^{.24}	13.4 ^{1.6}	40.22 ^{.31}	1.3 ^{0.5}	33.53 ^{.38}	11.0 ^{2.6}	50.67 ^{.24}	18.1 ^{0.8}
17.8	4.98 ^{.28}	25.7 ^{1.9}	5.53 ^{.25}	12.1 ^{1.3}	40.56 ^{.34}	1.0 ^{0.3}	33.98 ^{.45}	8.8 ^{2.2}	50.92 ^{.25}	18.9 ^{0.8}
27.8	5.28 ^{.30}	24.3 ^{1.4}	5.80 ^{.27}	11.1 ^{1.0}	40.91 ^{.35}	0.8 ^{0.2}	34.48 ^{.50}	7.2 ^{1.6}	51.20 ^{.28}	19.5 ^{0.6}
	5.28 ^{.31}	24.3 ^{0.9}	5.80 ^{.27}	11.1 ^{0.7}	40.91 ^{.36}	0.8 ^{0.1}	34.48 ^{.54}	7.2 ^{1.1}	51.20 ^{.28}	19.5 ^{0.5}
Sept. 6.8	5.59	23.4	6.07	10.4	41.27	0.7	35.02	6.1	51.48	20.0
16.8	5.90 ^{.31}	23.0 ^{0.4}	6.35 ^{.28}	10.0 ^{0.4}	41.63 ^{.36}	0.7 ^{0.0}	35.58 ^{.56}	5.6 ^{0.5}	51.76 ^{.28}	20.2 ^{0.2}
26.7	6.22 ^{.32}	23.2 ^{0.2}	6.64 ^{.29}	10.0 ^{0.0}	42.00 ^{.37}	0.8 ^{0.1}	36.15 ^{.57}	5.8 ^{0.2}	52.05 ^{.29}	20.2 ^{0.0}
Oct. 6.7	6.53 ^{.31}	23.9 ^{0.7}	6.92 ^{.28}	10.5 ^{0.5}	42.36 ^{.36}	1.0 ^{0.2}	36.70 ^{.55}	6.6 ^{0.8}	52.33 ^{.28}	19.9 ^{0.3}
16.7	6.82 ^{.29}	25.1 ^{1.2}	7.19 ^{.27}	11.3 ^{0.8}	42.72 ^{.36}	1.3 ^{0.3}	37.23 ^{.53}	8.1 ^{1.5}	52.61 ^{.28}	19.5 ^{0.4}
	6.82 ^{.28}	25.1 ^{1.8}	7.19 ^{.26}	11.3 ^{1.1}	42.72 ^{.34}	1.3 ^{0.4}	37.23 ^{.49}	8.1 ^{2.0}	52.61 ^{.28}	19.5 ^{0.7}
Nov. 26.6	7.10	26.9	7.45	12.4	43.06	1.7	37.72	10.1	52.89	18.8
5.6	7.36 ^{.26}	29.1 ^{2.2}	7.69 ^{.24}	13.8 ^{1.4}	43.39 ^{.33}	2.2 ^{0.5}	38.15 ^{.43}	12.7 ^{2.6}	53.14 ^{.25}	18.0 ^{0.8}
15.6	7.58 ^{.22}	31.7 ^{2.6}	7.91 ^{.22}	15.5 ^{1.7}	43.69 ^{.30}	2.8 ^{0.6}	38.51 ^{.36}	15.7 ^{3.0}	53.38 ^{.24}	17.1 ^{0.9}
25.6	7.77 ^{.19}	34.6 ^{2.9}	8.11 ^{.20}	17.4 ^{1.9}	43.96 ^{.27}	3.5 ^{0.7}	38.79 ^{.28}	19.1 ^{3.4}	53.60 ^{.22}	16.0 ^{1.1}
Dec. 5.5	7.92 ^{.15}	37.6 ^{3.0}	8.27 ^{.16}	19.4 ^{2.0}	44.19 ^{.23}	4.3 ^{0.8}	38.97 ^{.18}	22.7 ^{3.6}	53.78 ^{.18}	15.0 ^{1.0}
	7.92 ^{.11}	37.6 ^{3.1}	8.27 ^{.13}	19.4 ^{2.1}	44.19 ^{.18}	4.3 ^{0.9}	38.97 ^{.08}	22.7 ^{3.6}	53.78 ^{.15}	15.0 ^{1.1}
15.5	8.03	40.7	8.40	21.5	44.37	5.2	39.05	26.3	53.93	13.9
25.5	8.08 ^{.05}	43.7 ^{3.0}	8.49 ^{.09}	23.5 ^{2.0}	44.50 ^{.13}	6.1 ^{0.9}	39.03 ^{.02}	30.0 ^{3.7}	54.03 ^{.10}	12.8 ^{1.1}
35.5	8.08 ^{.00}	46.7 ^{3.0}	8.53 ^{.04}	25.4 ^{1.9}	44.57 ^{.07}	7.1 ^{1.0}	38.91 ^{.12}	33.5 ^{3.5}	54.10 ^{.07}	11.9 ^{0.9}

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Aurigæ.		θ Aurigæ.		ν Orionis.		22 Camelop. (H.)		η Geminorum.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 5 52	° ' " +44 56	h m 5 52	° ' " +37 12	h m 6 1	° ' " +14 46	h m 6 7	° ' " +69 20	h m 6 8	° ' " +22 31
Jan. 0.5	19.30	12.2	61.17	17.2	57.64	43.8	62.16	74.2	56.72	62.6
10.4	19.35	13.5	61.22	18.1	57.69	43.2	62.22	76.8	56.78	62.6
20.4	19.33	14.8	61.21	19.0	57.70	42.8	62.16	79.2	56.79	62.6
30.4	19.25	15.9	61.15	19.7	57.65	42.5	61.98	81.5	56.75	62.6
Feb. 9.4	19.12	16.9	61.03	20.4	57.56	42.2	61.68	83.5	56.67	62.7
19.3	18.93	17.7	60.87	21.0	57.44	42.0	61.28	85.1	56.54	62.8
Mar. 1.3	18.71	18.2	60.68	21.3	57.28	41.9	60.81	86.3	56.38	62.9
11.3	18.46	18.5	60.46	21.5	57.11	41.8	60.28	87.1	56.20	63.0
21.3	18.20	18.5	60.24	21.5	56.92	41.7	59.73	87.3	56.01	63.0
31.2	17.95	18.2	60.01	21.2	56.74	41.7	59.18	87.1	55.82	62.9
Apr. 10.2	17.71	17.6	59.81	20.8	56.57	41.6	58.65	86.3	55.64	62.8
20.2	17.51	16.8	59.63	20.2	56.42	41.6	58.18	85.1	55.48	62.6
30.1	17.35	15.8	59.49	19.4	56.30	41.7	57.78	83.5	55.35	62.4
May 10.1	17.24	14.6	59.39	18.6	56.22	41.8	57.47	81.6	55.25	62.2
20.1	17.18	13.3	59.35	17.6	56.17	42.0	57.25	79.4	55.20	62.1
30.1	17.18	12.0	59.35	16.7	56.17	42.3	57.15	77.0	55.20	61.9
June 9.0	17.24	10.6	59.41	15.8	56.21	42.6	57.15	74.5	55.23	61.8
19.0	17.35	9.3	59.52	14.8	56.29	43.0	57.27	72.0	55.31	61.7
29.0	17.52	8.0	59.67	14.0	56.41	43.4	57.50	69.5	55.44	61.7
July 9.0	17.74	6.8	59.87	13.2	56.57	43.9	57.83	67.1	55.60	61.7
18.9	18.00	5.8	60.11	12.6	56.76	44.4	58.25	64.8	55.79	61.8
28.9	18.30	4.9	60.38	12.0	56.98	45.0	58.75	62.7	56.01	61.9
Aug. 7.9	18.63	4.1	60.68	11.6	57.22	45.5	59.33	60.8	56.26	62.0
17.8	18.99	3.5	61.00	11.2	57.48	45.9	59.96	59.3	56.53	62.0
27.8	19.36	3.0	61.33	11.0	57.75	46.2	60.65	58.0	56.81	62.1
Sept. 6.8	19.75	2.7	61.68	10.8	58.04	46.5	61.37	57.1	57.11	62.1
16.8	20.15	2.6	62.04	10.8	58.33	46.6	62.12	56.5	57.41	62.1
26.7	20.55	2.6	62.40	10.7	58.63	46.5	62.89	56.3	57.72	62.0
Oct. 6.7	20.95	2.8	62.75	10.8	58.93	46.3	63.66	56.4	58.03	61.8
16.7	21.34	3.1	63.11	11.0	59.22	46.0	64.41	56.9	58.34	61.5
26.7	21.72	3.6	63.45	11.2	59.50	45.5	65.15	57.8	58.65	61.2
Nov. 5.6	22.08	4.2	63.77	11.6	59.78	44.9	65.84	59.0	58.94	60.9
15.6	22.41	5.0	64.07	12.0	60.03	44.2	66.48	60.6	59.21	60.5
25.6	22.71	6.0	64.34	12.6	60.26	43.5	67.05	62.4	59.46	60.2
Dec. 5.5	22.96	7.1	64.58	13.2	60.47	42.8	67.53	64.6	59.68	59.9
15.5	23.17	8.3	64.76	14.0	60.63	42.1	67.91	66.9	59.86	59.7
25.5	23.32	9.6	64.90	14.8	60.76	41.5	68.17	69.4	60.00	59.5
35.5	23.40	10.9	64.99	15.6	60.84	41.0	68.31	72.0	60.09	59.4

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	μ Geminorum.		ψ^1 Aurigæ.		α Argûs. (<i>Canopus</i> .)		ν Geminorum.		γ Geminorum.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 6 16	+22 33	h m 6 17	+49 20	h m 6 21	-52 38	h m 6 23	+20 16	h m 6 32	+16 28
Jan. 0.5	60.87	46.4	20.00	13.9	47.95	37.2	7.63	23.3	2.07	55.0
10.5	60.95	46.3	20.08	15.5	47.92	40.7	7.71	23.1	2.15	54.5
20.4	60.97	46.3	20.09	17.0	47.83	44.0	7.74	23.0	2.18	54.1
30.4	60.93	46.4	20.04	18.5	47.66	46.9	7.71	22.9	2.16	53.9
Feb. 9.4	60.86	46.5	19.91	19.8	47.44	49.5	7.64	23.0	2.10	53.7
19.4	60.74	46.6	19.73	20.9	47.16	51.6	7.52	23.0	1.99	53.6
Mar. 1.3	60.58	46.7	19.50	21.8	46.85	53.2	7.37	23.1	1.85	53.6
11.3	60.40	46.8	19.24	22.4	46.50	54.3	7.20	23.1	1.68	53.6
21.3	60.21	46.8	18.96	22.6	46.14	54.9	7.01	23.1	1.50	53.6
31.2	60.02	46.8	18.68	22.5	45.78	55.0	6.82	23.1	1.32	53.6
Apr. 10.2	59.84	46.7	18.41	22.1	45.43	54.6	6.64	23.1	1.14	53.6
20.2	59.68	46.6	18.17	21.4	45.10	53.6	6.48	23.0	0.98	53.7
30.2	59.54	46.4	17.97	20.4	44.80	52.2	6.35	23.0	0.84	53.7
May 10.1	59.44	46.2	17.81	19.2	44.54	50.3	6.25	22.9	0.74	53.8
20.1	59.39	46.0	17.72	17.9	44.34	48.1	6.18	22.8	0.67	53.9
30.1	59.37	45.9	17.68	16.4	44.18	45.5	6.16	22.8	0.64	54.1
June 9.1	59.40	45.8	17.71	14.8	44.09	42.6	6.19	22.8	0.66	54.3
19.0	59.48	45.7	17.79	13.2	44.06	39.6	6.25	22.8	0.71	54.5
29.0	59.59	45.6	17.94	11.6	44.09	36.4	6.36	22.9	0.81	54.8
July 9.0	59.74	45.6	18.13	10.1	44.17	33.2	6.50	23.0	0.94	55.1
18.9	59.93	45.6	18.38	8.7	44.32	30.0	6.68	23.1	1.10	55.4
28.9	60.14	45.7	18.67	7.3	44.52	27.0	6.89	23.2	1.30	55.7
Aug. 7.9	60.39	45.7	19.00	6.2	44.77	24.3	7.12	23.4	1.52	55.9
17.9	60.65	45.7	19.36	5.1	45.07	21.9	7.37	23.5	1.76	56.2
27.8	60.93	45.7	19.75	4.3	45.40	20.0	7.65	23.5	2.02	56.3
Sept. 6.8	61.22	45.7	20.15	3.6	45.77	18.5	7.93	23.5	2.30	56.3
16.8	61.52	45.6	20.58	3.1	46.16	17.7	8.23	23.4	2.58	56.2
26.8	61.84	45.4	21.01	2.8	46.56	17.4	8.53	23.2	2.88	56.0
Oct. 6.7	62.15	45.1	21.44	2.7	46.96	17.8	8.84	22.9	3.18	55.6
16.7	62.46	44.8	21.87	2.7	47.36	18.8	9.15	22.5	3.48	55.1
26.7	62.76	44.5	22.29	3.0	47.75	20.5	9.45	22.0	3.78	54.5
Nov. 5.6	63.06	44.1	22.70	3.6	48.11	22.7	9.75	21.5	4.07	53.8
15.6	63.34	43.7	23.08	4.3	48.43	25.4	10.03	21.0	4.35	53.1
25.6	63.60	43.3	23.43	5.2	48.71	28.5	10.28	20.4	4.61	52.3
Dec. 5.6	63.82	43.0	23.74	6.4	48.93	31.9	10.51	19.9	4.84	51.6
15.5	64.01	42.7	23.99	7.7	49.09	35.5	10.70	19.5	5.04	50.9
25.5	64.16	42.5	24.18	9.1	49.18	39.1	10.86	19.2	5.20	50.3
35.5	64.26	42.4	24.31	10.7	49.21	42.7	10.96	18.9	5.31	49.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ε Geminorum.			ψ ⁵ Aurigæ.			α Canis Majoris. (Sirius.)			θ Geminorum.			ζ Mensæ.		
	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion South.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion South.
	h	m	°	h	m	°	h	m	°	h	m	°	h	m	°
	6	37	+25 13	6	39	+43 40	6	40	-16 34	6	46	+34 4	6	48	-80 42
	s	"	"	s	"	"	s	"	"	s	"	"	s	"	"
Jan. 0.5	53.12	.10	38.3	39.50	.11	26.8	49.39	.06	55.2	.24	18.73	.11	24.80	.28	38.8
10.5	53.22	.04	38.3	39.61	.05	28.0	49.45	.02	57.6	.22	18.84	.05	24.52	.53	42.5
20.5	53.26	.01	38.5	39.66	.03	29.3	49.47	.04	59.8	.21	18.89	.01	23.99	.77	46.0
30.4	53.25	.07	38.7	39.63	.08	30.5	49.43	.08	61.9	.17	18.88	.06	23.22	.98	49.2
Feb. 9.4	53.18	.11	39.0	39.55	.14	31.7	49.35	.12	63.6	.15	18.82	.11	22.24	1.15	52.1
19.4	53.07	.14	39.3	39.41	.19	32.8	49.23	.15	65.1	.11	18.71	.16	21.09	1.31	54.6
Mar. 1.3	52.93	.18	39.6	39.22	.22	33.7	49.08	.18	66.2	.08	18.55	.18	19.78	1.41	56.7
11.3	52.75	.19	39.8	39.00	.24	34.3	48.90	.20	67.0	.05	18.37	.21	18.37	1.48	58.3
21.3	52.56	.19	40.0	38.76	.25	34.7	48.70	.20	67.5	.02	18.16	.22	16.89	1.52	59.4
31.3	52.37	.19	40.0	38.51	.25	34.9	48.50	.19	67.7	.02	17.94	.21	15.37	1.51	60.0
Apr. 10.2	52.18	.18	40.0	38.26	.22	34.7	48.31	.18	67.5	.05	17.73	.19	13.86	1.46	60.0
20.2	52.00	.14	39.9	38.04	.19	34.3	48.13	.16	67.0	.07	17.54	.16	12.40	1.39	59.5
30.2	51.86	.12	39.8	37.85	.15	33.7	47.97	.13	66.3	.11	17.38	.14	11.01	1.28	58.6
May 10.1	51.74	.07	39.5	37.70	.11	32.8	47.84	.09	65.2	.13	17.24	.09	9.73	1.15	57.1
20.1	51.67	.04	39.3	37.59	.05	31.8	47.75	.06	63.9	.15	17.15	.04	8.58	.98	55.2
30.1	51.63	.02	39.0	37.54	.00	30.7	47.69	.02	62.4	.17	17.11	.00	7.60	.79	53.0
June 9.1	51.65	.05	38.7	37.54	.05	29.4	47.67	.02	60.7	.19	17.11	.04	6.81	.59	50.4
19.0	51.70	.09	38.4	37.59	.11	28.1	47.69	.06	58.8	.20	17.15	.09	6.22	.37	47.5
29.0	51.79	.14	38.2	37.70	.16	26.8	47.75	.10	56.8	.20	17.24	.14	5.85	.14	44.4
July 9.0	51.93	.17	37.9	37.86	.20	25.5	47.85	.13	54.8	.20	17.38	.17	5.71	.10	41.3
19.0	52.10	.20	37.7	38.06	.24	24.2	47.98	.16	52.8	.19	17.55	.21	5.81	.32	38.1
28.9	52.30	.23	37.5	38.30	.28	23.0	48.14	.19	50.9	.18	17.76	.24	6.13	.55	35.0
Aug. 7.9	52.53	.25	37.3	38.58	.30	21.9	48.33	.22	49.1	.15	18.00	.27	6.68	.76	32.1
17.9	52.78	.27	37.1	38.88	.34	20.9	48.55	.23	47.6	.12	18.27	.29	7.44	.95	29.4
27.9	53.05	.29	36.9	39.22	.36	20.0	48.78	.26	46.4	.09	18.56	.31	8.39	1.11	27.2
Sept. 6.8	53.34	.31	36.6	39.58	.37	19.2	49.04	.27	45.5	.05	18.87	.33	9.50	1.24	25.4
16.8	53.65	.31	36.3	39.95	.38	18.5	49.31	.28	45.0	.01	19.20	.33	10.74	1.32	24.1
26.8	53.96	.32	36.0	40.33	.40	18.0	49.59	.29	44.9	.04	19.53	.35	12.06	1.37	23.5
Oct. 6.7	54.28	.32	35.6	40.73	.39	17.6	49.88	.29	45.3	.08	19.88	.35	13.43	1.36	23.4
16.7	54.60	.32	35.1	41.12	.40	17.3	50.17	.28	46.1	.12	20.23	.35	14.79	1.31	24.0
26.7	54.92	.31	34.7	41.52	.38	17.2	50.45	.28	47.3	.17	20.58	.34	16.10	1.21	25.3
Nov. 5.7	55.23	.30	34.2	41.90	.37	17.3	50.73	.26	49.0	.19	20.92	.33	17.31	1.06	27.2
15.6	55.53	.28	33.8	42.27	.34	17.6	50.99	.24	50.9	.23	21.25	.31	18.37	.88	29.6
25.6	55.81	.25	33.4	42.61	.30	18.1	51.23	.22	53.2	.24	21.56	.28	19.25	.66	32.4
Dec. 5.6	56.06	.21	33.1	42.91	.26	18.8	51.45	.18	55.6	.25	21.84	.24	19.91	.42	35.6
15.6	56.27	.17	32.9	43.17	.21	19.6	51.63	.13	58.1	.25	22.08	.20	20.33	.15	39.1
25.5	56.44	.13	32.8	43.38	.15	20.7	51.76	.09	60.6	.25	22.28	.14	20.48	.11	42.7
35.5	56.57		32.8	43.53		21.8	51.85		63.1		22.42		20.37		46.4

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ϵ Canis Majoris.		ζ Geminorum.		δ Canis Majoris.		63 Aurigæ.		γ^2 Volantis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 6 54	° ' -28 50	h m 6 58	° ' +20 42	h m 7 4	° ' -26 14	h m 7 4	° ' +39 28	h m 7 9	° ' -70 20
	s	"	s	"	s	"	s	"	s	"
Jan. 0.5	46.42	20.8	16.79	47.9	24.23	15.9	53.80	46.7	39.40	21.6
10.5	46.49	23.8	16.90	47.7	24.31	18.8	53.94	47.6	39.40	25.4
20.5	46.50	26.6	16.96	47.5	24.34	21.6	54.02	48.6	39.26	29.1
30.4	46.46	29.1	16.97	47.5	24.31	24.1	54.03	49.7	39.00	32.6
Feb. 9.4	46.38	31.4	16.93	47.6	24.24	26.3	53.98	50.8	38.63	35.8
19.4	46.24	33.3	16.84	47.7	24.12	28.2	53.87	51.8	38.17	38.6
Mar. 1.4	46.07	34.8	16.71	47.8	23.96	29.7	53.72	52.7	37.61	41.0
11.3	45.87	36.0	16.55	48.0	23.78	30.9	53.53	53.4	37.00	42.9
21.3	45.66	36.7	16.37	48.2	23.57	31.7	53.31	54.0	36.34	44.2
31.3	45.43	37.0	16.18	48.4	23.36	32.0	53.08	54.3	35.66	45.1
Apr. 10.2	45.21	36.9	16.00	48.5	23.15	32.0	52.85	54.4	34.97	45.4
20.2	45.01	36.4	15.83	48.6	22.94	31.6	52.64	54.3	34.30	45.2
30.2	44.82	35.6	15.68	48.6	22.76	30.8	52.45	53.9	33.66	44.5
May 10.2	44.66	34.3	15.56	48.6	22.60	29.7	52.29	53.4	33.06	43.2
20.1	44.53	32.7	15.47	48.5	22.48	28.2	52.18	52.6	32.53	41.5
30.1	44.44	30.9	15.42	48.5	22.39	26.5	52.10	51.8	32.08	39.4
June 9.1	44.39	28.8	15.41	48.4	22.34	24.5	52.08	50.8	31.71	36.9
19.1	44.39	26.4	15.45	48.4	22.32	22.3	52.11	49.7	31.44	34.1
29.0	44.42	24.0	15.52	48.4	22.35	20.0	52.18	48.6	31.27	31.0
July 9.0	44.49	21.5	15.63	48.3	22.42	17.6	52.30	47.4	31.21	27.8
19.0	44.61	19.0	15.77	48.3	22.52	15.3	52.46	46.3	31.25	24.6
29.0	44.75	16.5	15.95	48.3	22.66	12.9	52.66	45.2	31.41	21.4
Aug. 7.9	44.94	14.3	16.15	48.2	22.83	10.8	52.90	44.1	31.67	18.3
17.9	45.15	12.3	16.38	48.1	23.04	8.8	53.16	43.0	32.02	15.5
27.9	45.38	10.6	16.63	47.9	23.27	7.2	53.46	42.1	32.47	13.0
Sept. 6.8	45.65	9.3	16.90	47.6	23.52	6.0	53.78	41.1	33.00	11.0
16.8	45.93	8.5	17.18	47.3	23.79	5.1	54.11	40.3	33.60	9.5
26.8	46.22	8.2	17.48	46.9	24.08	4.8	54.47	39.5	34.25	8.6
Oct. 6.8	46.53	8.4	17.79	46.3	24.38	5.0	54.83	38.8	34.93	8.4
16.7	46.84	9.1	18.10	45.7	24.68	5.7	55.21	38.2	35.62	8.8
26.7	47.15	10.4	18.41	45.0	24.99	6.8	55.59	37.8	36.31	9.8
Nov. 5.7	47.45	12.2	18.72	44.3	25.29	8.5	55.96	37.5	36.96	11.5
15.7	47.73	14.3	19.02	43.5	25.57	10.6	56.32	37.3	37.55	13.8
25.6	47.99	16.9	19.31	42.8	25.84	13.0	56.66	37.4	38.07	16.6
Dec. 5.6	48.22	19.7	19.57	42.2	26.08	15.8	56.97	37.6	38.50	19.8
15.6	48.41	22.6	19.79	41.6	26.28	18.6	57.25	38.1	38.82	23.4
25.5	48.56	25.7	19.98	41.1	26.44	21.6	57.48	38.7	39.02	27.1
35.5	48.66	28.7	20.12	40.8	26.55	24.5	57.65	39.6	39.09	30.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	25 Camelop. (H.)		δ Geminorum.		Piazzii vii, 67.		β Canis Minoris.		α^2 Geminorum. (Castor.)	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 7 10	° ' +82 35	h m 7 14	° ' +22 9	h m 7 20	° ' +68 39	h m 7 21	° ' + 8 29	h m 7 28	° ' +32 6
	s	"	s	"	s	"	s	"	s	"
Jan. 0.5	30.22	60.2	15.21	43.9	40.35	54.2	49.30	11.3	19.73	10.9
10.5	30.69 .47	63.1 2.9	15.34 .13	43.7 0.2	40.60 .25	56.5 2.3	49.42 .12	10.2 1.1	19.89 .16	11.2 0.3
20.5	30.82 .13	66.1 3.0	15.42 .08	43.6 0.1	40.72 .12	59.0 2.5	49.50 .08	9.3 0.9	19.99 .10	11.8 0.6
30.5	30.82 .22	69.1 3.0	15.42 .02	43.6 0.0	40.72 .00	61.6 2.6	49.50 .03	8.5 0.8	20.03 .04	12.4 0.6
Feb. 9.4	30.60 .56	69.1 2.8	15.44 .03	43.6 0.2	40.72 .13	64.0 2.4	49.53 .03	8.5 0.6	20.03 .02	12.4 0.7
	30.04 .87	71.9 2.5	15.41 .07	43.8 0.2	40.59 .24	64.0 2.2	49.50 .07	7.9 0.4	20.01 .07	13.1 0.8
19.4	29.17	74.4	15.34	44.0	40.35	66.2	49.43	7.5	19.94	13.9
Mar. 1.4	28.05	76.5	15.22	44.3	40.00	68.1	49.32	7.2	19.82	14.6
11.3	26.71	78.1	15.07	44.6	39.58	69.7	49.18	7.0	19.66	15.3
21.3	25.22	79.3	14.89	44.8	39.09	70.9	49.02	7.0	19.47	15.8
31.3	23.64	79.8	14.70	45.1	38.57	71.5	48.85	7.0	19.27	16.2
	1.59	0.0	.18	0.1	.53	0.2	.18	0.1	.00	0.3
Apr. 10.3	22.05	79.8	14.52	45.2	38.04	71.7	48.67	7.1	19.07	16.5
20.2	20.51	79.2	14.34	45.4	37.52	71.4	48.51	7.4	18.87	16.7
30.2	19.07	78.1	14.18	45.4	37.05	70.6	48.36	7.7	18.69	16.6
May 10.2	17.80	76.4	14.05	45.4	36.63	69.4	48.23	8.0	18.54	16.4
20.2	16.74	74.3	13.96	45.3	36.28	67.8	48.13	8.4	18.42	16.0
	.83	2.4	.06	0.1	.25	1.9	.06	0.5	.08	0.4
30.1	15.91	71.9	13.90	45.2	36.03	65.9	48.07	8.9	18.34	15.6
June 9.1	15.35	69.2	13.87	45.1	35.86	63.7	48.04	9.5	18.30	15.0
19.1	15.07	66.3	13.89	45.0	35.80	61.3	48.05	10.1	18.31	14.3
29.0	15.08	63.2	13.95	44.9	35.83	58.7	48.10	10.7	18.35	13.6
July 9.0	15.37	60.1	14.04	44.7	35.96	56.1	48.17	11.3	18.44	12.8
	.57	3.1	.14	0.2	.23	2.7	.11	0.6	.12	0.8
19.0	15.94	57.0	14.18	44.5	36.19	53.4	48.28	11.9	18.56	12.0
29.0	16.77	54.0	14.34	44.4	36.51	50.8	48.42	12.5	18.72	11.2
Aug. 7.9	17.85	51.2	14.53	44.2	36.91	48.4	48.59	13.0	18.91	10.4
17.9	19.15	48.6	14.75	43.9	37.39	46.0	48.79	13.4	19.14	9.5
27.9	20.64	46.3	14.99	43.5	37.94	43.9	49.01	13.6	19.39	8.7
	1.66	2.0	.26	0.4	.60	1.9	.23	0.1	.27	0.9
Sept. 6.9	22.30	44.3	15.25	43.1	38.54	42.0	49.24	13.7	19.66	7.8
16.8	24.10	42.6	15.53	42.6	39.19	40.3	49.50	13.6	19.96	6.9
26.8	26.01	41.3	15.82	42.1	39.89	39.0	49.77	13.2	20.27	6.0
Oct. 6.8	28.00	40.5	16.13	41.4	40.61	38.0	50.06	12.7	20.60	5.2
16.7	30.01	40.1	16.44	40.7	41.36	37.4	50.35	11.9	20.94	4.3
	2.01	0.1	.32	0.8	.75	0.3	.30	0.9	.35	0.8
26.7	32.02	40.2	16.76	39.9	42.11	37.1	50.65	11.0	21.29	3.5
Nov. 5.7	33.97	40.8	17.08	39.1	42.84	37.3	50.95	9.9	21.64	2.8
15.7	35.83	41.9	17.39	38.3	43.56	37.9	51.24	8.6	21.98	2.2
25.6	37.54	43.4	17.69	37.6	44.23	38.8	51.52	7.3	22.31	1.8
Dec. 5.6	39.05	45.4	17.96	36.9	44.84	40.2	51.78	5.9	22.62	1.5
	1.28	2.3	.24	0.6	.54	1.8	.23	1.3	.27	0.1
15.6	40.33	47.7	18.20	36.3	45.38	42.0	52.01	4.6	22.89	1.4
25.6	41.32	50.4	18.41	35.9	45.81	44.0	52.20	3.3	23.13	1.4
35.5	42.00	53.3	18.57	35.6	46.14	46.3	52.36	2.1	23.31	1.7
	.68	2.9	.16	0.3	.33	2.3	.16	1.2	.18	0.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>a</i> Canis Minoris. (<i>Procyon</i> .)		β Geminorum. (<i>Pollux</i> .)		ϕ Geminorum.		26 Lyncis.		Groombridge 1374.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 7 34	° ' " + 5 28	h m 7 39	° ' " +28 15	h m 7 47	° ' " +27 0	h m 7 47	° ' " +47 48	h m 7 48	° ' " +74 10
Jan. 0.6	9.54	33.7	18.11	44.7	28.91	68.7	33.52	64.3	27.66	43.6
10.5	9.68	32.3	18.27	44.7	29.08	68.7	33.73	65.6	28.06	46.1
20.5	9.76	31.1	18.38	45.0	29.20	68.8	33.87	67.0	28.29	48.8
30.5	9.79	30.1	18.43	45.4	29.26	69.1	33.93	68.5	28.36	51.5
Feb. 9.4	9.78	29.3	18.42	45.9	29.26	69.6	33.93	70.1	28.25	54.2
19.4	9.72	28.7	18.36	46.5	29.21	70.1	33.85	71.6	27.99	56.8
Mar. 1.4	9.62	28.2	18.25	47.1	29.11	70.7	33.71	73.1	27.58	59.1
11.4	9.48	27.9	18.11	47.7	28.98	71.3	33.52	74.4	27.05	61.0
21.3	9.32	27.7	17.94	48.2	28.81	71.8	33.29	75.5	26.43	62.6
31.3	9.15	27.7	17.75	48.6	28.63	72.2	33.04	76.3	25.75	63.6
Apr. 10.3	8.98	27.8	17.55	49.0	28.44	72.6	32.78	76.8	25.03	64.2
20.3	8.81	28.0	17.36	49.2	28.25	72.9	32.52	77.0	24.32	64.2
30.2	8.66	28.3	17.18	49.2	28.08	73.0	32.28	76.8	23.63	63.6
May 10.2	8.53	28.7	17.03	49.2	27.93	73.0	32.06	76.4	23.01	62.6
20.2	8.42	29.2	16.92	49.0	27.81	72.9	31.88	75.6	22.46	61.1
30.1	8.35	29.8	16.83	48.7	27.72	72.7	31.75	74.6	22.02	59.2
June 9.1	8.31	30.4	16.78	48.3	27.67	72.4	31.66	73.4	21.69	57.0
19.1	8.30	31.1	16.78	47.9	27.66	72.0	31.63	72.0	21.48	54.5
29.0	8.33	31.8	16.81	47.4	27.68	71.6	31.64	70.5	21.40	51.8
July 9.0	8.40	32.6	16.88	46.8	27.75	71.1	31.71	68.8	21.45	49.0
19.0	8.49	33.3	16.99	46.2	27.85	70.6	31.83	67.1	21.63	46.0
29.0	8.62	34.0	17.13	45.6	27.98	70.0	32.00	65.4	21.94	43.1
Aug. 8.0	8.78	34.6	17.31	44.9	28.14	69.3	32.20	63.6	22.36	40.3
17.9	8.96	35.0	17.51	44.2	28.34	68.6	32.45	61.9	22.89	37.5
27.9	9.16	35.4	17.74	43.5	28.56	67.9	32.74	60.2	23.51	34.9
Sept. 6.9	9.39	35.5	17.99	42.7	28.81	67.1	33.05	58.6	24.23	32.6
16.8	9.63	35.4	18.27	41.8	29.08	66.2	33.40	57.1	25.03	30.5
26.8	9.89	35.1	18.57	40.9	29.37	65.3	33.78	55.7	25.90	28.7
Oct. 6.8	10.17	34.5	18.88	40.0	29.68	64.4	34.18	54.4	26.81	27.3
16.8	10.46	33.7	19.21	39.1	30.00	63.4	34.59	53.4	27.76	26.2
26.7	10.76	32.6	19.54	38.2	30.33	62.4	35.02	52.5	28.74	25.6
Nov. 5.7	11.05	31.4	19.88	37.3	30.67	61.4	35.45	51.9	29.72	25.5
15.7	11.35	30.0	20.21	36.5	31.00	60.5	35.88	51.6	30.67	25.8
25.7	11.63	28.5	20.54	35.8	31.32	59.7	36.29	51.5	31.58	26.6
Dec. 5.6	11.89	26.9	20.84	35.2	31.63	59.0	36.68	51.7	32.42	27.8
15.6	12.13	25.3	21.11	34.8	31.91	58.5	37.03	52.3	33.17	29.4
25.6	12.33	23.8	21.35	34.6	32.15	58.2	37.34	53.1	33.80	31.5
35.5	12.49	22.4	21.54	34.6	32.35	58.1	37.58	54.2	34.29	33.9

FIXED STARS, 1901.

349

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ω^1 Cancri.		3 Ursæ Majoris (H.)		15 Argûs (ρ).		ζ^1 Cancri.		β Cancri.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 7 54	° ' " +25 39	h m 8 2	° ' " +68 45	h m 8 3	° ' " -24 1	h m 8 6	° ' " +17 56	h m 8 11	° ' " +9 29
	s	"	s	"	s	"	s	"	s	"
Jan. 0.6	58.99	38.6	62.85	41.7	21.92	13.1	34.45	36.2	11.06	16.5
10.5	59.17	38.5	63.21	43.9	22.07	16.0	34.63	35.5	11.24	15.4
20.5	59.29	38.5	63.44	46.3	22.16	18.8	34.76	35.1	11.36	14.4
30.5	59.36	38.8	63.55	48.8	22.20	21.5	34.83	34.8	11.44	13.5
Feb. 9.5	59.37	39.1	63.53	51.4	22.19	23.9	34.85	34.7	11.46	12.9
19.4	59.32	39.6	63.38	53.9	22.13	26.0	34.82	34.7	11.43	12.5
Mar. 1.4	59.23	40.1	63.11	56.1	22.03	27.9	34.75	34.9	11.36	12.2
11.4	59.10	40.7	62.75	58.1	21.89	29.4	34.63	35.2	11.25	12.1
21.3	58.95	41.2	62.32	59.7	21.72	30.5	34.49	35.5	11.12	12.1
31.3	58.77	41.7	61.83	60.9	21.54	31.2	34.33	35.8	10.96	12.3
Apr. 10.3	58.58	42.1	61.31	61.7	21.34	31.6	34.15	36.2	10.80	12.5
20.3	58.39	42.4	60.78	61.9	21.15	31.6	33.98	36.5	10.63	12.8
30.2	58.23	42.5	60.28	61.6	20.96	31.3	33.82	36.8	10.47	13.1
May 10.2	58.08	42.6	59.81	60.9	20.79	30.6	33.68	37.0	10.33	13.5
20.2	57.95	42.6	59.40	59.7	20.65	29.6	33.56	37.2	10.22	13.9
June 9.1	57.81	42.5	59.06	58.1	20.53	28.3	33.46	37.4	10.12	14.3
19.1	57.79	41.9	58.64	54.0	20.38	25.0	33.38	37.6	10.03	15.3
29.1	57.81	41.6	58.57	51.5	20.36	23.0	33.39	37.7	10.04	15.8
July 9.0	57.86	41.2	58.59	48.9	20.38	20.9	33.43	37.7	10.07	16.2
19.0	57.95	40.7	58.70	46.2	20.42	18.8	33.51	37.6	10.14	16.7
29.0	58.08	40.2	58.91	43.4	20.50	16.6	33.61	37.5	10.23	17.1
Aug. 8.0	58.23	39.6	59.21	40.6	20.62	14.6	33.75	37.3	10.36	17.4
17.9	58.42	38.9	59.58	37.9	20.77	12.7	33.91	37.0	10.51	17.5
27.9	58.63	38.2	60.04	35.4	20.94	11.0	34.10	36.7	10.69	17.6
Sept. 6.9	58.87	37.4	60.56	33.0	21.15	9.6	34.32	36.2	10.89	17.5
16.9	59.13	36.5	61.14	30.8	21.38	8.7	34.56	35.5	11.12	17.1
26.8	59.41	35.6	61.78	28.9	21.64	8.1	34.82	34.7	11.37	16.6
Oct. 6.8	59.72	34.6	62.47	27.3	21.92	8.0	35.10	33.8	11.64	15.9
16.8	60.03	33.6	63.18	26.0	22.22	8.4	35.40	32.8	11.92	14.9
Nov. 5.7	60.36	32.5	63.93	25.1	22.53	9.3	35.71	31.6	12.22	13.8
15.7	60.69	31.5	64.68	24.6	22.84	10.7	36.03	30.4	12.53	12.5
25.7	61.03	30.5	65.42	24.6	23.15	12.5	36.35	29.2	12.84	11.1
Dec. 5.6	61.35	29.6	66.14	25.0	23.46	14.7	36.66	28.0	13.14	9.6
15.6	61.66	28.8	66.81	25.9	23.74	17.2	36.96	26.8	13.43	8.1
25.6	61.94	28.2	67.42	27.2	23.99	19.9	37.24	25.7	13.70	6.6
35.6	62.19	27.7	67.95	28.8	24.21	22.8	37.48	24.8	13.94	5.2
	62.39	27.5	68.37	30.9	24.39	25.7	37.69	24.0	14.13	4.0

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	30 Monocerotis.		θ Chamæleontis.		η Cancr.		σ Hydræ.		γ Cancr.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 8 20	° ' 33 35	h m 8 23	° ' 77 9	h m 8 27	° ' 20 46	h m 8 33	° ' 34 0	h m 8 37	° ' 21 49
	s	"	s	"	s	"	s	"	s	"
Jan. 0.6	45.04	8.5	42.75	53.9	1.40	26.9	37.18	71.1	35.77	15.9
10.6	45.21	10.5	43.03	57.6	1.60	26.3	37.37	69.5	35.98	15.3
20.5	45.34	12.3	43.11	61.5	1.75	26.0	37.51	68.1	36.15	15.0
30.5	45.41	13.9	43.00	65.3	1.85	25.9	37.60	66.9	36.25	14.9
Feb. 9.5	45.44	15.3	42.72	69.1	1.89	25.9	37.64	65.9	36.31	15.0
19.4	45.42	16.5	42.26	72.6	1.88	26.1	37.64	65.1	36.31	15.3
Mar. 1.4	45.35	17.4	41.66	75.8	1.82	26.5	37.58	64.5	36.26	15.7
11.4	45.25	18.1	40.93	78.7	1.72	26.9	37.49	64.1	36.17	16.2
21.4	45.11	18.6	40.09	81.2	1.59	27.4	37.37	63.9	36.04	16.7
31.3	44.96	18.8	39.17	83.2	1.43	27.9	37.23	63.9	35.89	17.3
Apr. 10.3	44.80	18.9	38.20	84.7	1.26	28.3	37.07	64.0	35.72	17.8
20.3	44.64	18.8	37.19	85.7	1.09	28.8	36.91	64.3	35.55	18.3
30.3	44.48	18.4	36.19	86.2	0.93	29.1	36.76	64.6	35.39	18.7
May 10.2	44.33	17.9	35.20	86.1	0.78	29.4	36.62	65.0	35.23	19.1
20.2	44.21	17.3	34.26	85.5	0.64	29.6	36.49	65.6	35.10	19.3
30.2	44.11	16.5	33.39	84.4	0.54	29.7	36.39	66.2	34.99	19.4
June 9.2	44.04	15.6	32.60	82.8	0.47	29.8	36.32	66.8	34.91	19.4
19.1	44.00	14.6	31.92	80.8	0.42	29.8	36.27	67.5	34.86	19.4
29.1	43.99	13.5	31.36	78.3	0.41	29.7	36.25	68.2	34.84	19.3
July 9.1	44.01	12.4	30.94	75.6	0.44	29.5	36.27	69.0	34.85	19.0
19.0	44.06	11.2	30.67	72.6	0.49	29.3	36.31	69.7	34.90	18.7
29.0	44.13	10.1	30.56	69.5	0.58	29.0	36.38	70.4	34.97	18.3
Aug. 8.0	44.24	9.1	30.62	66.4	0.70	28.6	36.48	71.0	35.08	17.8
18.0	44.38	8.2	30.84	63.3	0.85	28.0	36.61	71.4	35.22	17.2
27.9	44.54	7.5	31.23	60.4	1.02	27.4	36.76	71.7	35.38	16.5
Sept. 6.9	44.73	7.0	31.78	57.7	1.22	26.7	36.94	71.8	35.58	15.7
16.9	44.94	6.8	32.47	55.4	1.45	25.8	37.15	71.7	35.80	14.8
26.8	45.18	6.9	33.28	53.6	1.70	24.9	37.38	71.3	36.05	13.7
Oct. 6.8	45.44	7.3	34.20	52.3	1.98	23.8	37.63	70.7	36.32	12.5
16.8	45.72	8.0	35.19	51.7	2.28	22.6	37.91	69.8	36.61	11.2
26.8	46.01	9.1	36.22	51.7	2.59	21.3	38.20	68.7	36.92	9.9
Nov. 5.7	46.30	10.4	37.26	52.4	2.91	20.0	38.50	67.3	37.24	8.5
15.7	46.61	12.0	38.27	53.7	3.24	18.7	38.81	65.8	37.57	7.1
25.7	46.91	13.8	39.21	55.6	3.56	17.4	39.12	64.1	37.90	5.8
Dec. 5.7	47.20	15.8	40.05	58.1	3.88	16.2	39.41	62.3	38.23	4.6
15.6	47.46	17.9	40.76	61.1	4.17	15.1	39.69	60.5	38.53	3.5
25.6	47.70	19.9	41.31	64.5	4.44	14.2	39.94	58.7	38.80	2.6
35.6	47.89	21.9	41.70	68.1	4.66	13.6	40.15	57.1	39.04	2.0

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

351

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ε Hydræ.		σ ² Cancri (mean).		ι Ursæ Majoris.		σ ² Ursæ Majoris.		κ Cancri.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 8 41	° ' " + 6 46	h m 8 48	° ' " + 30 56	h m 8 52	° ' " + 48 25	h m 9 1	° ' " + 67 31	h m 9 2	° ' " + 11 3
	s	"	s	"	s	"	s	"	s	"
Jan. 0.6	34.20	45.4	14.72	61.3	28.69	32.6	45.30	52.1	25.25	48.5
10.6	34.40	44.0	14.95	61.3	28.98	33.4	45.77	53.8	25.47	47.3
20.5	34.55	42.7	15.14	61.4	29.21	34.6	46.13	55.9	25.65	46.2
30.5	34.65	41.6	15.27	61.9	29.36	36.1	46.37	58.2	25.77	45.3
Feb. 9.5	34.70	40.8	15.34	62.6	29.44	37.7	46.50	60.8	25.85	44.7
19.5	34.70	40.2	15.35	63.4	29.45	39.5	46.50	63.4	25.87	44.4
Mar. 1.4	34.66	39.8	15.30	64.3	29.39	41.2	46.38	65.9	25.85	44.2
11.4	34.57	39.5	15.21	65.3	29.27	43.0	46.15	68.3	25.78	44.2
21.4	34.46	39.5	15.08	66.2	29.09	44.6	45.84	70.5	25.68	44.3
31.3	34.32	39.5	14.92	67.1	28.88	45.9	45.45	72.3	25.55	44.6
Apr. 10.3	34.16	39.7	14.75	67.9	28.64	47.0	45.01	73.7	25.41	44.9
20.3	34.01	40.0	14.56	68.5	28.38	47.9	44.53	74.7	25.26	45.3
30.3	33.85	40.4	14.38	69.0	28.13	48.4	44.05	75.2	25.10	45.7
May 10.2	33.71	40.8	14.21	69.3	27.89	48.5	43.58	75.2	24.96	46.2
20.2	33.58	41.3	14.05	69.4	27.67	48.3	43.14	74.7	24.83	46.6
30.2	33.48	41.8	13.93	69.3	27.48	47.8	42.74	73.8	24.72	47.1
June 9.2	33.40	42.4	13.83	69.1	27.33	46.9	42.40	72.4	24.63	47.5
19.1	33.35	42.9	13.76	68.7	27.22	45.8	42.13	70.6	24.56	47.9
29.1	33.33	43.5	13.73	68.1	27.15	44.4	41.94	68.5	24.53	48.3
July 9.1	33.33	44.1	13.73	67.4	27.13	42.8	41.82	66.1	24.52	48.6
19.0	33.37	44.6	13.77	66.6	27.15	41.1	41.78	63.5	24.54	48.9
29.0	33.44	45.1	13.84	65.6	27.22	39.2	41.83	60.7	24.59	49.1
Aug. 8.0	33.53	45.4	13.94	64.6	27.33	37.1	41.96	57.8	24.66	49.2
18.0	33.65	45.7	14.07	63.4	27.49	35.0	42.17	54.8	24.77	49.2
27.9	33.80	45.8	14.24	62.2	27.69	32.9	42.46	51.9	24.90	49.0
Sept. 6.9	33.98	45.8	14.44	60.8	27.92	30.7	42.82	49.0	25.06	48.6
16.9	34.18	45.5	14.67	59.4	28.20	28.6	43.25	46.2	25.25	48.1
26.9	34.41	45.0	14.92	58.0	28.52	26.5	43.75	43.6	25.47	47.4
Oct. 6.8	34.66	44.2	15.21	56.5	28.87	24.5	44.32	41.3	25.71	46.4
16.8	34.93	43.3	15.52	55.0	29.25	22.7	44.93	39.2	25.97	45.3
26.8	35.22	42.1	15.84	53.5	29.66	21.1	45.59	37.4	26.26	44.0
Nov. 5.7	35.52	40.7	16.19	52.0	30.08	19.7	46.27	36.1	26.56	42.5
15.7	35.83	39.1	16.54	50.7	30.52	18.5	46.98	35.1	26.88	40.9
25.7	36.14	37.5	16.90	49.5	30.96	17.7	47.69	34.7	27.20	39.2
Dec. 5.7	36.45	35.8	17.25	48.5	31.39	17.3	48.38	34.7	27.51	37.5
15.6	36.73	34.0	17.58	47.7	31.80	17.2	49.04	35.2	27.81	35.9
25.6	36.99	32.4	17.88	47.2	32.17	17.5	49.64	36.2	28.09	34.4
35.6	37.21	30.9	18.14	47.0	32.50	18.1	50.16	37.7	28.33	33.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	θ Hydræ.			β Argûs.			γ Argûs.			α Lyncis.			α Hydræ.		
	Right Ascension.	Declina- tion North.		Right Ascension.	Declina- tion South.		Right Ascension.	Declina- tion South.		Right Ascension.	Declina- tion North.		Right Ascension.	Declina- tion South.	
	h m 9 9	° ' " + 2 43		h m 9 12	° ' " - 69 18		h m 9 14	° ' " - 58 51		h m 9 15	° ' " + 34 48		h m 9 22	° ' " - 8 13	
	s	"		s	"		s	"		s	"		s	"	
Jan. 0.6	14.90	45.6		10.81	30.4		29.29	32.6		3.81	24.2		45.36	53.0	
10.6	15.12	43.9 ^{1.7}		11.16 ^{.35}	34.0 ^{3.6}		29.57 ^{.28}	36.2 ^{3.6}		4.08 ^{.27}	24.2 ^{0.0}		45.58 ^{.22}	55.3 ^{2.3}	
20.6	15.30	42.3 ^{1.6}		11.39 ^{.23}	37.9 ^{3.9}		29.77 ^{.20}	40.0 ^{3.8}		4.30 ^{.22}	24.5 ^{0.3}		45.76 ^{.18}	57.5 ^{2.2}	
30.5	15.43	40.9 ^{1.4}		11.51 ^{.12}	41.8 ^{3.9}		29.89 ^{.12}	43.9 ^{3.9}		4.46 ^{.16}	25.1 ^{0.6}		45.90 ^{.14}	59.5 ^{2.0}	
Feb. 9.5	15.51	39.8 ^{1.1}		11.51 ^{.00}	45.7 ^{3.9}		29.92 ^{.03}	47.6 ^{3.7}		4.56 ^{.10}	25.9 ^{0.8}		45.98 ^{.08}	61.3 ^{1.8}	
		0.9			3.8			3.7			1.1			1.6	
19.5	15.53	38.9 ^{0.7}		11.39 ^{.22}	49.5 ^{3.5}		29.87 ^{.12}	51.3 ^{3.4}		4.60 ^{.02}	27.0 ^{1.2}		46.02 ^{.01}	62.9 ^{1.3}	
Mar. 1.5	15.51	38.2 ^{0.5}		11.17 ^{.31}	53.0 ^{3.3}		29.75 ^{.19}	54.7 ^{3.1}		4.58 ^{.07}	28.2 ^{1.2}		46.01 ^{.09}	64.2 ^{1.1}	
11.4	15.45	37.7 ^{0.2}		10.86 ^{.39}	56.3 ^{2.9}		29.56 ^{.25}	57.8 ^{2.7}		4.51 ^{.11}	29.4 ^{1.2}		45.96 ^{.05}	65.3 ^{0.8}	
21.4	15.36	37.5 ^{0.1}		10.47 ^{.47}	59.2 ^{2.5}		29.31 ^{.29}	60.5 ^{2.4}		4.40 ^{.15}	30.6 ^{1.2}		45.87 ^{.12}	66.1 ^{0.5}	
31.4	15.24	37.4 ^{0.1}		10.00 ^{.51}	61.7 ^{2.1}		29.02 ^{.33}	62.9 ^{1.8}		4.25 ^{.17}	31.8 ^{1.1}		45.75 ^{.13}	66.6 ^{0.3}	
Apr. 10.3	15.10	37.5 ^{0.2}		9.49 ^{.54}	63.8 ^{1.6}		28.69 ^{.35}	64.7 ^{1.4}		4.08 ^{.19}	32.9 ^{0.8}		45.62 ^{.14}	66.9 ^{0.1}	
20.3	14.95	37.7 ^{0.3}		8.95 ^{.57}	65.4 ^{1.0}		28.34 ^{.36}	66.1 ^{0.9}		3.89 ^{.19}	33.7 ^{0.7}		45.48 ^{.15}	67.0 ^{0.1}	
30.3	14.80	38.0 ^{0.4}		8.38 ^{.57}	66.4 ^{0.5}		27.98 ^{.36}	67.0 ^{0.3}		3.70 ^{.18}	34.4 ^{0.5}		45.33 ^{.15}	66.9 ^{0.4}	
May 10.3	14.66	38.4 ^{0.5}		7.81 ^{.56}	66.9 ^{0.0}		27.62 ^{.35}	67.3 ^{0.1}		3.52 ^{.17}	34.9 ^{0.2}		45.18 ^{.13}	66.5 ^{0.5}	
20.2	14.53	38.9 ^{0.6}		7.25 ^{.53}	66.9 ^{0.6}		27.27 ^{.34}	67.2 ^{0.7}		3.35 ^{.15}	35.1 ^{0.0}		45.05 ^{.12}	66.0 ^{0.7}	
30.2	14.42	39.5 ^{0.7}		6.72 ^{.50}	66.3 ^{1.1}		26.93 ^{.31}	66.5 ^{1.2}		3.20 ^{.12}	35.1 ^{0.2}		44.93 ^{.10}	65.3 ^{0.8}	
June 9.2	14.33	40.2 ^{0.7}		6.22 ^{.45}	65.2 ^{1.5}		26.62 ^{.27}	65.3 ^{1.6}		3.08 ^{.10}	34.9 ^{0.5}		44.83 ^{.08}	64.5 ^{1.0}	
19.2	14.26	40.9 ^{0.7}		5.77 ^{.39}	63.7 ^{2.0}		26.35 ^{.23}	63.7 ^{2.0}		2.98 ^{.06}	34.4 ^{0.6}		44.75 ^{.06}	63.5 ^{1.1}	
29.1	14.22	41.6 ^{0.7}		5.38 ^{.31}	61.7 ^{2.4}		26.12 ^{.18}	61.7 ^{2.4}		2.92 ^{.03}	33.8 ^{0.9}		44.69 ^{.03}	62.4 ^{1.2}	
July 9.1	14.20	42.3 ^{0.7}		5.07 ^{.24}	59.3 ^{2.7}		25.94 ^{.13}	59.3 ^{2.6}		2.89 ^{.01}	32.9 ^{1.0}		44.66 ^{.01}	61.2 ^{1.2}	
19.1	14.21	43.0 ^{0.6}		4.83 ^{.14}	56.6 ^{2.9}		25.81 ^{.07}	56.7 ^{2.9}		2.90 ^{.04}	31.9 ^{1.2}		44.65 ^{.02}	60.0 ^{1.2}	
29.0	14.25	43.6 ^{0.6}		4.69 ^{.05}	53.7 ^{3.1}		25.74 ^{.00}	53.8 ^{3.0}		2.94 ^{.07}	30.7 ^{1.3}		44.67 ^{.05}	58.8 ^{1.1}	
Aug. 8.0	14.32	44.2 ^{0.4}		4.64 ^{.05}	50.6 ^{3.2}		25.74 ^{.05}	50.8 ^{3.0}		3.01 ^{.11}	29.4 ^{1.5}		44.72 ^{.07}	57.7 ^{1.1}	
18.0	14.41	44.6 ^{0.3}		4.69 ^{.15}	47.4 ^{3.0}		25.79 ^{.13}	47.8 ^{2.9}		3.12 ^{.14}	27.9 ^{1.5}		44.79 ^{.11}	56.6 ^{0.9}	
28.0	14.53	44.9 ^{0.1}		4.84 ^{.26}	44.4 ^{2.9}		25.92 ^{.19}	44.9 ^{2.7}		3.26 ^{.18}	26.4 ^{1.7}		44.90 ^{.13}	55.7 ^{0.7}	
Sept. 6.9	14.68	45.0 ^{0.1}		5.10 ^{.35}	41.5 ^{2.6}		26.11 ^{.26}	42.2 ^{2.4}		3.44 ^{.21}	24.7 ^{1.7}		45.03 ^{.16}	55.0 ^{0.4}	
16.9	14.86	44.9 ^{0.4}		5.45 ^{.45}	38.9 ^{2.2}		26.37 ^{.32}	39.8 ^{2.0}		3.65 ^{.24}	23.0 ^{1.8}		45.19 ^{.20}	54.6 ^{0.1}	
26.9	15.07	44.5 ^{0.7}		5.90 ^{.53}	36.7 ^{1.7}		26.69 ^{.38}	37.8 ^{1.5}		3.89 ^{.27}	21.2 ^{1.8}		45.39 ^{.22}	54.5 ^{0.2}	
Oct. 6.9	15.30	43.8 ^{0.9}		6.43 ^{.60}	35.0 ^{1.1}		27.07 ^{.43}	36.3 ^{1.0}		4.16 ^{.30}	19.4 ^{1.8}		45.61 ^{.25}	54.7 ^{0.6}	
16.8	15.56	42.9 ^{1.2}		7.03 ^{.66}	33.9 ^{0.5}		27.50 ^{.46}	35.3 ^{0.3}		4.46 ^{.33}	17.6 ^{1.8}		45.86 ^{.28}	55.3 ^{0.9}	
26.8	15.84	41.7 ^{1.4}		7.69 ^{.68}	33.4 ^{0.1}		27.96 ^{.49}	35.0 ^{0.3}		4.79 ^{.35}	15.8 ^{1.6}		46.14 ^{.29}	56.2 ^{1.2}	
Nov. 5.8	16.14	40.3 ^{1.7}		8.37 ^{.69}	33.5 ^{0.8}		28.45 ^{.51}	35.3 ^{1.0}		5.14 ^{.36}	14.2 ^{1.5}		46.43 ^{.31}	57.4 ^{1.6}	
15.7	16.44	38.6 ^{1.8}		9.06 ^{.69}	34.3 ^{1.5}		28.96 ^{.50}	36.3 ^{1.6}		5.50 ^{.37}	12.7 ^{1.4}		46.74 ^{.32}	59.0 ^{1.9}	
25.7	16.76	36.8 ^{1.9}		9.75 ^{.64}	35.8 ^{2.1}		29.46 ^{.47}	37.9 ^{2.2}		5.87 ^{.37}	11.3 ^{1.1}		47.06 ^{.31}	60.9 ^{2.1}	
Dec. 5.7	17.07	34.9 ^{1.9}		10.39 ^{.59}	37.9 ^{2.6}		29.93 ^{.44}	40.1 ^{2.7}		6.24 ^{.36}	10.2 ^{0.8}		47.37 ^{.30}	63.0 ^{2.2}	
15.7	17.37	33.0 ^{1.9}		10.98 ^{.50}	40.5 ^{3.1}		30.37 ^{.39}	42.8 ^{3.2}		6.60 ^{.33}	9.4 ^{0.6}		47.67 ^{.28}	65.2 ^{2.3}	
25.6	17.64	31.1 ^{1.8}		11.48 ^{.42}	43.6 ^{3.5}		30.76 ^{.32}	46.0 ^{3.4}		6.93 ^{.29}	8.8 ^{0.2}		47.95 ^{.25}	67.5 ^{2.3}	
35.6	17.88	29.3		11.90	47.1		31.08	49.4		7.22	8.6		48.20	69.8	

FIXED STARS, 1901.

353

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Draconis (H.)		δ Ursæ Majoris.		θ Ursæ Majoris.		ιo Leonis Minoris.		ο Leonis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 9 22	° ' " +81 45	h m 9 25	° ' " +70 15	h m 9 26	° ' " +52 7	h m 9 28	° ' " +36 49	h m 9 35	° ' " +10 20
Jan. 0.6	68.23	29.8	48.17	34.9	16.96	23.8	11.85	56.7	54.01	22.5
10.6	69.41	31.8	48.73	36.5	17.31	24.5	12.14	56.7	54.26	21.1
20.6	70.34	34.2	49.19	38.6	17.59	25.7	12.38	57.1	54.47	19.9
30.5	70.99	37.0	49.52	40.9	17.80	27.2	12.56	57.7	54.62	18.9
Feb. 9.5	71.34	40.0	49.71	43.5	17.93	29.0	12.68	58.7	54.73	18.2
19.5	71.37	43.0	49.77	46.2	17.99	30.9	12.73	59.8	54.79	17.7
Mar. 1.5	71.10	46.0	49.69	48.9	17.97	33.0	12.73	61.1	54.79	17.5
11.4	70.54	48.8	49.49	51.6	17.88	35.0	12.67	62.5	54.76	17.5
21.4	69.72	51.3	49.18	54.0	17.72	36.9	12.57	63.9	54.68	17.6
31.4	68.69	53.5	48.77	56.1	17.52	38.6	12.43	65.2	54.58	17.8
Apr. 10.4	67.49	55.2	48.30	57.8	17.28	40.1	12.26	66.4	54.45	18.2
20.3	66.18	56.4	47.78	59.1	17.02	41.3	12.07	67.4	54.32	18.7
30.3	64.80	57.0	47.23	59.8	16.74	42.1	11.88	68.2	54.17	19.2
May 10.3	63.41	57.1	46.69	60.1	16.47	42.6	11.69	68.7	54.03	19.7
20.2	62.06	56.6	46.16	59.9	16.22	42.7	11.52	69.0	53.90	20.2
30.2	60.80	55.6	45.67	59.1	15.98	42.3	11.36	69.1	53.78	20.7
June 9.2	59.66	54.0	45.24	57.9	15.78	41.6	11.22	68.9	53.68	21.2
19.2	58.68	52.0	44.87	56.3	15.62	40.6	11.12	68.4	53.60	21.6
29.1	57.88	49.6	44.59	54.3	15.49	39.2	11.04	67.7	53.54	22.1
July 9.1	57.28	46.9	44.38	51.9	15.42	37.6	11.00	66.8	53.50	22.4
19.1	56.91	43.8	44.26	49.3	15.38	35.7	10.99	65.7	53.50	22.7
29.1	56.75	40.6	44.23	46.4	15.40	33.6	11.01	64.4	53.51	22.9
Aug. 8.0	56.82	37.2	44.30	43.4	15.46	31.4	11.07	63.0	53.55	23.0
18.0	57.12	33.8	44.45	40.3	15.57	29.0	11.16	61.4	53.63	22.9
28.0	57.64	30.4	44.70	37.1	15.72	26.5	11.29	59.7	53.72	22.7
Sept. 6.9	58.38	27.0	45.03	34.0	15.92	24.0	11.45	57.9	53.85	22.3
16.9	59.32	23.8	45.45	31.0	16.17	21.5	11.65	56.0	54.01	21.7
26.9	60.45	20.8	45.95	28.1	16.46	19.0	11.89	54.0	54.20	21.0
Oct. 6.9	61.75	18.1	46.52	25.4	16.79	16.6	12.15	52.1	54.41	20.0
16.8	63.20	15.7	47.17	23.0	17.17	14.4	12.45	50.1	54.66	18.7
26.8	64.77	13.7	47.87	20.9	17.58	12.3	12.78	48.2	54.93	17.3
Nov. 5.8	66.44	12.2	48.61	19.3	18.01	10.5	13.13	46.4	55.23	15.8
15.8	68.16	11.2	49.39	18.0	18.47	9.0	13.50	44.8	55.54	14.1
25.7	69.91	10.8	50.18	17.3	18.94	7.8	13.88	43.3	55.86	12.3
Dec. 5.7	71.62	10.9	50.96	17.1	19.41	7.1	14.26	42.2	56.18	10.5
15.7	73.25	11.5	51.71	17.4	19.86	6.7	14.63	41.3	56.49	8.7
25.6	74.75	12.8	52.41	18.2	20.28	6.8	14.98	40.7	56.79	7.0
35.6	76.07	14.6	53.03	19.5	20.66	7.4	15.29	40.5	57.05	5.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Chamæleonis.		ε Leonis.		μ Leonis.		19 Leonis Minoris.		π Leonis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 9 36	° ' -80 29	h m 9 40	° ' +24 13	h m 9 47	° ' +26 27	h m 9 51	° ' +41 31	h m 9 55	° ' + 8 30
	s	"	s	"	s	"	s	"	s	"
Jan. 0.6	55.48	41.3	15.98	33.3	10.02	68.1	39.50	18.9	0.79	58.0
10.6	56.24	44.6	16.24	32.6	10.29	67.4	39.82	19.0	1.05	56.4
20.6	56.78	48.3	16.47	32.2	10.53	67.1	40.09	19.4	1.27	55.0
30.6	57.09	52.1	16.64	32.0	10.71	67.1	40.31	20.2	1.45	53.9
Feb. 9.5	57.15	56.0	16.77	32.2	10.84	67.3	40.46	21.4	1.57	53.0
19.5	56.99	59.9	16.83	32.6	10.91	67.8	40.55	22.8	1.65	52.4
Mar. 1.5	56.60	63.7	16.85	33.2	10.93	68.6	40.57	24.3	1.67	52.0
11.4	56.01	67.2	16.81	33.9	10.91	69.4	40.54	26.0	1.66	51.9
21.4	55.24	70.5	16.73	34.7	10.83	70.4	40.45	27.7	1.60	51.9
31.4	54.32	73.4	16.62	35.6	10.73	71.4	40.32	29.3	1.51	52.2
Apr. 10.4	53.26	76.0	16.49	36.5	10.59	72.4	40.15	30.8	1.40	52.5
20.3	52.11	78.0	16.34	37.3	10.44	73.3	39.96	32.1	1.27	52.9
30.3	50.88	79.6	16.18	38.1	10.28	74.1	39.76	33.1	1.14	53.4
May 10.3	49.62	80.7	16.02	38.7	10.12	74.8	39.56	33.8	1.00	53.9
20.3	48.34	81.2	15.88	39.2	9.97	75.3	39.36	34.3	0.87	54.5
30.2	47.09	81.2	15.74	39.5	9.83	75.7	39.18	34.4	0.75	55.0
June 9.2	45.88	80.7	15.63	39.7	9.71	75.8	39.02	34.3	0.65	55.6
19.2	44.76	79.6	15.54	39.7	9.61	75.8	38.88	33.8	0.56	56.1
29.1	43.74	78.0	15.47	39.6	9.53	75.6	38.77	33.0	0.49	56.6
July 9.1	42.86	76.0	15.43	39.3	9.48	75.2	38.70	32.0	0.44	57.0
19.1	42.14	73.6	15.41	38.9	9.46	74.7	38.66	30.7	0.42	57.4
29.1	41.60	70.9	15.42	38.3	9.47	74.0	38.65	29.2	0.42	57.7
Aug. 8.0	41.27	67.9	15.47	37.6	9.50	73.1	38.68	27.5	0.44	57.8
18.0	41.16	64.8	15.54	36.7	9.57	72.1	38.74	25.7	0.49	57.9
28.0	41.28	61.7	15.64	35.7	9.67	70.9	38.84	23.7	0.57	57.7
Sept. 7.0	41.63	58.7	15.78	34.5	9.79	69.6	38.98	21.5	0.68	57.4
16.9	42.21	55.8	15.94	33.2	9.95	68.1	39.16	19.3	0.82	56.9
26.9	43.00	53.3	16.14	31.7	10.15	66.5	39.38	17.0	0.99	56.2
Oct. 6.9	43.99	51.2	16.37	30.1	10.37	64.8	39.64	14.7	1.19	55.2
16.8	45.14	49.6	16.63	28.4	10.63	63.0	39.93	12.5	1.42	54.0
26.8	46.42	48.6	16.92	26.7	10.92	61.2	40.26	10.3	1.68	52.6
Nov. 5.8	47.79	48.2	17.23	24.9	11.23	59.3	40.62	8.3	1.97	51.0
15.8	49.19	48.5	17.56	23.1	11.56	57.5	41.00	6.4	2.28	49.3
25.7	50.58	49.4	17.90	21.4	11.91	55.8	41.40	4.8	2.59	47.4
Dec. 5.7	51.91	51.0	18.24	19.8	12.26	54.2	41.80	3.5	2.92	45.5
15.7	53.13	53.1	18.58	18.4	12.60	52.8	42.20	2.6	3.23	43.6
25.7	54.20	55.8	18.89	17.3	12.93	51.7	42.57	2.0	3.54	41.8
35.6	55.09	58.9	19.18	16.4	13.22	50.9	42.92	1.8	3.81	40.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Leonis Minoris.		α Antlæ.		γ Draconis. (H.)		ρ Leonis.		δ Leonis Minoris.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 10 22	° ' " +37 12	h m 10 22	° ' " -30 33	h m 10 26	° ' " +76 12	h m 10 27	° ' " +9 48	h m 10 38	° ' " +23 41
	s	"	s	"	s	"	s	"	s	"
Jan. 0.7	11.48	33.3	39.16	50.1	44.97	58.4	37.63	46.2	3.70	68.4
10.6	11.81	32.9	39.45	53.1	45.87	59.5	37.92	44.5	4.01	67.3
20.6	12.10	32.9	39.69	56.1	46.66	61.2	38.16	43.1	4.28	66.5
30.6	12.34	33.3	39.89	59.1	47.29	63.3	38.37	42.0	4.51	66.1
Feb. 9.6	12.52	34.1	40.04	62.1	47.76	65.9	38.52	41.2	4.69	66.1
19.5	12.64	35.2	40.13	64.9	48.05	68.7	38.63	40.6	4.81	66.3
Mar. 1.5	12.70	36.5	40.17	67.5	48.16	71.6	38.70	40.3	4.89	66.9
11.5	12.71	38.0	40.17	69.9	48.08	74.6	38.71	40.2	4.92	67.6
21.4	12.66	39.6	40.12	72.0	47.83	77.5	38.68	40.3	4.90	68.6
31.4	12.57	41.2	40.04	73.8	47.42	80.1	38.62	40.7	4.84	69.6
Apr. 10.4	12.44	42.8	39.92	75.3	46.88	82.5	38.54	41.1	4.74	70.7
20.4	12.29	44.2	39.79	76.4	46.23	84.5	38.43	41.6	4.63	71.8
30.3	12.12	45.4	39.64	77.1	45.50	86.0	38.31	42.2	4.50	72.8
May 10.3	11.94	46.4	39.48	77.5	44.73	87.0	38.18	42.8	4.36	73.7
20.3	11.76	47.1	39.32	77.6	43.93	87.4	38.05	43.5	4.22	74.5
30.3	11.59	47.6	39.17	77.3	43.15	87.3	37.93	44.1	4.08	75.2
June 9.2	11.43	47.7	39.02	76.6	42.40	86.7	37.82	44.7	3.95	75.7
19.2	11.29	47.6	38.88	75.6	41.70	85.5	37.72	45.2	3.84	76.0
29.2	11.17	47.2	38.76	74.4	41.08	83.9	37.63	45.7	3.74	76.1
July 9.1	11.08	46.5	38.66	72.9	40.55	81.8	37.57	46.1	3.65	76.0
19.1	11.01	45.5	38.58	71.1	40.12	79.3	37.52	46.4	3.59	75.7
29.1	10.98	44.3	38.52	69.3	39.81	76.5	37.49	46.6	3.55	75.2
Aug. 8.1	10.97	42.9	38.49	67.3	39.61	73.4	37.49	46.6	3.53	74.5
18.0	10.99	41.3	38.49	65.3	39.54	70.1	37.51	46.5	3.54	73.7
28.0	11.05	39.4	38.53	63.3	39.59	66.7	37.55	46.3	3.58	72.6
Sept. 7.0	11.15	37.4	38.60	61.5	39.77	63.2	37.63	45.9	3.65	71.3
17.0	11.28	35.3	38.72	59.9	40.09	59.7	37.74	45.2	3.75	69.9
26.9	11.45	33.1	38.87	58.6	40.53	56.2	37.88	44.4	3.89	68.3
Oct. 6.9	11.66	30.8	39.07	57.6	41.09	52.9	38.05	43.3	4.06	66.5
16.9	11.91	28.4	39.30	57.1	41.78	49.8	38.26	42.0	4.27	64.6
26.8	12.20	26.1	39.58	57.0	42.58	47.0	38.50	40.5	4.52	62.5
Nov. 5.8	12.52	23.8	39.88	57.4	43.47	44.6	38.77	38.8	4.80	60.4
15.8	12.86	21.7	40.21	58.3	44.44	42.5	39.07	37.0	5.10	58.3
25.8	13.24	19.8	40.56	59.7	45.46	41.0	39.38	35.0	5.43	56.3
Dec. 5.7	13.62	18.1	40.91	61.6	46.52	40.1	39.71	33.0	5.78	54.3
15.7	14.00	16.7	41.26	63.8	47.58	39.7	40.03	31.1	6.12	52.5
25.7	14.37	15.7	41.59	66.4	48.60	39.9	40.35	29.2	6.46	51.0
35.7	14.72	15.1	41.90	69.2	49.56	40.7	40.65	27.5	6.78	49.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	7 Argûs.			1 Leonis.			2 Chamæleontis.			46 Leonis Minoris.			Groombridge 1706.		
	Right Ascension.		Declina- tion South.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion South.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.
	h m	°		h m	°		h m	°		h m	°		h m	°	
	10 41	-59 9		10 44	+11 3		10 44	-80 0		10 47	+34 44		10 51	+78 17	
	s	"		s	"		s	"		s	"		s	"	
Jan. 0.7	15.67	43.3	3.1	4.85	56.3		57.16	55.0		48.21	36.4		65.68	36.5	
10.6	16.10	46.4	3.3	5.14	54.6	1.7	58.22	57.8	2.8	48.55	35.7	0.7	66.77	37.4	0.9
20.6	16.46	49.7	3.3	5.40	53.2	1.4	59.11	61.0	3.2	48.86	35.4	0.3	67.75	38.9	1.5
30.6	16.76	53.3	3.6	5.62	52.1	1.1	59.80	64.5	3.5	49.11	35.5	0.1	68.57	40.9	2.0
Feb. 9.6	16.97	57.0	3.7	5.80	51.3	0.8	60.30	68.3	3.8	49.32	36.1	0.6	69.21	43.3	2.4
			3.8			0.5			3.9			0.8			2.7
19.5	17.11	60.8		5.92	50.8		60.58	72.2		49.46	36.9		69.65	46.0	
Mar. 1.5	17.17	64.5	3.7	6.00	50.6	0.2	60.65	76.1	3.9	49.56	38.1	1.2	69.87	49.0	3.0
11.5	17.15	68.0	3.5	6.03	50.6	0.0	60.51	79.9	3.8	49.59	39.5	1.4	69.89	52.0	3.0
21.5	17.07	71.3	3.3	6.02	50.8	0.2	60.18	83.7	3.8	49.58	41.0	1.5	69.69	55.0	3.0
31.4	16.93	74.3	3.0	5.98	51.2	0.4	59.68	87.2	3.5	49.52	42.6	1.6	69.30	57.9	2.9
			2.7			0.5			3.2			1.6			2.6
Apr. 10.4	16.74	77.0	2.3	5.90	51.7	0.6	59.02	90.4	2.8	49.42	44.2	1.5	68.75	60.5	2.2
20.4	16.50	79.3	1.9	5.81	52.3	0.7	58.22	93.2	2.4	49.29	45.7	1.3	68.05	62.7	1.8
30.3	16.23	81.2	1.4	5.70	53.0	0.7	57.31	95.6	2.0	49.14	47.0	1.2	67.24	64.5	1.3
May 10.3	15.93	82.6	0.9	5.57	53.7	0.7	56.30	97.6	1.4	48.98	48.2	0.9	66.35	65.8	0.7
20.3	15.62	83.5	0.4	5.45	54.4	0.6	55.23	99.0	1.0	48.82	49.1	0.7	65.42	66.5	0.2
30.3	15.31	83.9	0.1	5.33	55.0	0.6	54.11	100.0	0.3	48.65	49.8	0.4	64.47	66.7	0.3
June 9.2	14.99	83.8	0.6	5.21	55.6	0.5	52.98	100.3	0.1	48.50	50.2	0.1	63.54	66.4	0.9
19.2	14.68	83.2	1.1	5.11	56.1	0.5	51.86	100.2	0.7	48.36	50.3	0.2	62.66	65.5	1.4
29.2	14.39	82.1	1.5	5.02	56.6	0.4	50.79	99.5	1.3	48.23	50.1	0.5	61.85	64.1	1.9
July 9.2	14.12	80.6	2.0	4.94	57.0	0.2	49.79	98.2	1.7	48.13	49.6	0.7	61.12	62.2	2.3
19.1	13.89	78.6	2.2	4.88	57.2	0.2	48.89	96.5	2.2	48.04	48.9	1.0	60.50	59.9	2.7
29.1	13.69	76.4	2.6	4.84	57.4	0.0	48.12	94.3	2.5	47.98	47.9	1.2	60.00	57.2	3.1
Aug. 8.1	13.55	73.8	2.8	4.82	57.4	0.2	47.51	91.8	2.9	47.95	46.7	1.5	59.64	54.1	3.2
18.0	13.46	71.0	2.8	4.82	57.2	0.3	47.08	88.9	3.0	47.94	45.2	1.7	59.41	50.9	3.5
28.0	13.44	68.2	2.8	4.85	56.9	0.5	46.85	85.9	3.1	47.97	43.5	1.9	59.33	47.4	3.6
Sept. 7.0	13.48	65.4	2.8	4.91	56.4	0.7	46.84	82.8	3.1	48.03	41.6	2.1	59.40	43.8	3.6
17.0	13.60	62.6	2.5	5.00	55.7	1.0	47.05	79.7	2.9	48.13	39.5	2.2	59.63	40.2	3.6
26.9	13.79	60.1	2.2	5.13	54.7	1.2	47.49	76.8	2.7	48.26	37.3	2.3	60.01	36.6	3.5
Oct. 6.9	14.05	57.9	1.8	5.29	53.5	1.4	48.15	74.1	2.3	48.44	35.0	2.4	60.54	33.1	3.3
16.9	14.38	56.1	1.2	5.48	52.1	1.5	49.02	71.8	1.8	48.66	32.6	2.5	61.22	29.8	3.1
26.9	14.78	54.9	0.7	5.71	50.6	1.8	50.06	70.0	1.3	48.91	30.1	2.4	62.03	26.7	2.7
Nov. 5.8	15.23	54.2	0.1	5.98	48.8	1.9	51.24	68.7	0.7	49.21	27.7	2.3	62.98	24.0	2.4
15.8	15.72	54.1	0.6	6.27	46.9	2.0	52.54	68.0	0.0	49.53	25.4	2.1	64.03	21.6	1.8
25.8	16.24	54.7	1.1	6.58	44.9	2.0	53.89	68.0	0.7	49.89	23.3	2.0	65.17	19.8	1.3
Dec. 5.7	16.77	55.8	1.8	6.90	42.9	2.0	55.26	68.7	1.3	50.25	21.3	1.6	66.36	18.5	0.7
15.7	17.29	57.6	2.3	7.23	40.9	1.9	56.60	70.0	1.9	50.63	19.7	1.3	67.58	17.8	0.1
25.7	17.79	59.9	2.8	7.55	39.0	1.7	57.86	71.9	2.4	51.00	18.4	1.0	68.78	17.7	0.6
35.7	18.24	62.7		7.86	37.3		59.01	74.3		51.35	17.4		69.92	18.3	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Majoris.		η Octantis.		β^3 Leonis.		ψ Ursæ Majoris.		δ Leonis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 10 57	° ' " +62 16	h m 10 59	° ' " -84 3	h m 11 1	° ' " + 2 29	h m 11 4	° ' " +45 1	h m 11 8	° ' " +21 3
	s	"	s	"	s	"	s	"	s	"
Jan. 0.7	39.18	43.6	69.18	29.7	52.76	25.6	7.53	47.2	52.10	42.8
10.7	39.71 .53	43.8 0.2	70.99 1.81	32.3 2.6	53.06 .30	23.7 1.9	7.92 .39	46.8 0.4	52.42 .32	41.5 1.3
20.6	40.19 .48	44.7 0.9	72.53 1.54	35.3 3.0	53.32 .26	21.9 1.8	8.27 .35	46.8 0.0	52.70 .28	40.4 1.1
30.6	40.60 .41	46.1 1.4	73.78 1.25	38.7 .92	53.55 .18	20.3 1.6	8.57 .30	47.4 0.6	52.95 .25	39.8 0.6
Feb. 9.6	40.93 .33	47.9 1.8	74.70 .92	42.3 3.6	53.73 .18	18.9 1.4	8.82 .25	47.4 1.0	53.16 .21	39.4 0.4
19.5	41.17 .24	50.1 2.2	75.28 .58	46.1 3.8	53.87 .14	17.9 1.0	9.00 .18	49.7 1.3	53.31 .15	39.4 0.0
Mar. 1.5	41.31 .14	52.5 2.4	75.52 .24	50.0 3.9	53.97 .10	17.1 0.8	9.12 .12	51.4 1.7	53.42 .11	39.8 0.4
11.5	41.36 .05	55.1 2.6	75.43 .09	53.9 3.9	54.02 .05	16.5 0.6	9.18 .06	53.3 1.9	53.48 .06	40.4 0.6
21.5	41.31 .03	57.8 2.7	75.01 .42	57.7 .73	54.02 .00	16.2 0.3	9.18 .00	55.4 2.1	53.50 .02	41.2 0.8
31.4	41.18 .20	60.4 2.6	74.28 1.00	61.4 3.7	54.00 .06	16.2 0.0	9.12 .06	57.5 2.1	53.47 .03	42.2 1.0
Apr. 10.4	40.98 .26	62.9 2.2	73.28 1.25	64.7 3.1	53.94 .08	16.3 0.2	9.01 .14	59.5 1.9	53.41 .09	43.2 1.1
20.4	40.72 .31	65.1 1.8	72.03 1.46	67.8 2.6	53.86 .10	16.5 0.4	8.87 .17	61.4 1.7	53.32 .10	44.3 1.1
30.4	40.41 .33	66.9 1.5	70.57 1.65	70.4 2.3	53.76 .11	16.9 0.5	8.70 .19	63.1 1.4	53.22 .12	45.4 1.1
May 10.3	40.08 .36	68.4 1.0	68.92 1.78	72.7 1.7	53.65 .11	17.4 0.6	8.51 .21	64.5 1.1	53.10 .13	46.5 0.9
20.3	39.72 .36	69.4 0.5	67.14 1.88	74.4 1.2	53.54 .11	18.0 0.6	8.30 .20	65.6 0.8	52.97 .13	47.4 0.8
30.3	39.36 .35	69.9 0.1	65.26 1.93	75.6 0.7	53.43 .12	18.6 0.7	8.10 .20	66.4 0.4	52.84 .12	48.2 0.6
June 9.2	39.01 .33	70.0 0.5	63.33 1.84	76.3 0.1	53.31 .10	19.3 0.6	7.90 .19	66.8 0.1	52.72 .12	48.8 0.5
19.2	38.68 .31	69.5 0.9	61.39 1.99	76.4 0.4	53.21 .10	19.9 0.7	7.71 .17	66.9 0.4	52.60 .11	49.3 0.3
29.2	38.37 .27	68.6 1.3	59.50 1.79	76.0 1.0	53.11 .08	20.6 0.6	7.54 .15	66.5 0.7	52.49 .08	49.6 0.1
July 9.2	38.10 .23	67.3 1.8	57.71 1.63	75.0 1.5	53.03 .07	21.2 0.6	7.39 .13	65.8 1.0	52.39 .08	49.7 0.1
19.1	37.87 .18	65.5 2.1	56.08 1.44	73.5 1.9	52.96 .06	21.8 0.5	7.26 .10	64.8 1.4	52.31 .06	49.6 0.3
29.1	37.69 .13	63.4 2.5	54.64 1.18	71.6 2.4	52.90 .03	22.3 0.5	7.16 .07	63.4 1.7	52.25 .05	49.3 0.5
Aug. 8.1	37.56 .07	60.9 2.7	53.46 .58	69.2 2.7	52.87 .01	22.8 0.5	7.09 .03	61.7 2.0	52.20 .02	48.8 0.7
18.1	37.49 .02	58.2 3.0	52.58 .36	66.5 3.0	52.86 .01	23.1 0.1	7.06 .00	59.7 2.2	52.18 .01	48.1 0.9
28.0	37.47 .05	55.2 3.1	52.02 .19	63.5 3.1	52.87 .04	23.2 0.0	7.06 .03	57.5 2.4	52.19 .03	47.2 1.1
Sept. 7.0	37.52 .11	52.1 3.3	51.83 .19	60.4 3.1	52.91 .07	23.2 0.2	7.09 .09	55.1 2.6	52.22 .07	46.1 1.3
17.0	37.63 .18	48.8 3.3	52.02 .58	57.3 3.0	52.98 .10	23.0 0.5	7.18 .12	52.5 2.7	52.29 .10	44.8 1.6
26.9	37.81 .25	45.5 3.3	52.60 .95	54.3 2.8	53.08 .15	22.5 0.7	7.30 .18	49.8 2.8	52.39 .14	43.2 1.7
Oct. 6.9	38.06 .32	42.2 3.2	53.55 1.30	51.5 2.5	53.23 .17	21.8 1.0	7.48 .22	47.0 2.8	52.53 .18	41.5 1.9
16.9	38.38 .38	39.0 3.0	54.85 1.62	49.0 2.1	53.40 .22	20.8 1.2	7.70 .26	44.2 2.8	52.71 .21	39.6 2.1
26.9	38.76 .45	36.0 2.8	56.47 1.87	46.9 1.5	53.62 .24	19.6 1.5	7.96 .32	41.4 2.7	52.92 .26	37.5 2.1
Nov. 5.8	39.21 .50	33.2 2.6	58.34 2.07	45.4 1.0	53.86 .28	18.1 1.7	8.28 .35	38.7 2.6	53.18 .29	35.4 2.2
15.8	39.71 .54	30.6 2.1	60.41 2.20	44.4 0.3	54.14 .31	16.4 1.9	8.63 .38	36.1 2.3	53.47 .31	33.2 2.2
25.8	40.25 .57	28.5 1.7	62.61 2.24	44.1 0.3	54.45 .31	14.5 2.0	9.01 .41	33.8 2.0	53.78 .33	31.0 2.2
Dec. 5.8	40.82 .59	26.8 1.1	64.85 2.21	44.4 1.0	54.76 .33	12.5 2.1	9.42 .42	31.8 1.6	54.11 .34	28.8 2.0
15.7	41.41 .58	25.7 0.7	67.06 2.11	45.4 1.6	55.09 .32	10.4 2.1	9.84 .42	30.2 1.2	54.45 .34	26.8 1.8
25.7	41.99 .55	25.0 0.0	69.17 1.94	47.0 2.2	55.41 .31	8.3 2.0	10.26 .40	29.0 0.7	54.79 .33	25.0 1.5
35.7	42.54 .55	25.0 0.0	71.11 1.94	49.2 2.2	55.72 .31	6.3 2.0	10.66 .40	28.3 0.7	55.12 .33	23.5 1.5

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

359

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ν Ursæ Majoris.		δ Crateris.		τ Leonis.		λ Draconis.		ξ Hydræ.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m II 13	° ' +33 37	h m II 14	° ' -14 14	h m II 22	° ' + 3 23	h m II 25	° ' +69 51	h m II 28	° ' -31 18
	s "	"	s "	"	s "	"	s "	"	s "	"
Jan. 0.7	9.39	45.6	24.94	37.6	52.16	56.0	33.41	73.5	9.48	33.4
10.7	9.73	44.7	25.25	40.0	52.46	54.0	34.13	73.7	9.82	36.0
20.7	10.05	44.2	25.52	42.4	52.74	52.2	34.78	74.5	10.12	38.8
30.6	10.32	44.1	25.76	44.7	52.99	50.7	35.36	75.9	10.39	41.6
Feb. 9.6	10.55	44.5	25.95	46.9	53.19	49.4	35.84	77.8	10.61	44.4
19.6	10.73	45.2	26.10	48.9	53.35	48.3	36.21	80.1	10.78	47.2
Mar. 1.5	10.85	46.3	26.21	50.7	53.47	47.6	36.46	82.7	10.91	49.9
11.5	10.91	47.6	26.27	52.2	53.54	47.1	36.58	85.6	10.98	52.4
21.5	10.93	49.1	26.29	53.5	53.57	46.8	36.57	88.5	11.01	54.6
31.5	10.90	50.7	26.27	54.6	53.56	46.8	36.45	91.4	11.00	56.6
Apr. 10.4	10.82	52.4	26.22	55.4	53.52	47.0	36.22	94.1	10.96	58.4
20.4	10.72	54.0	26.15	55.9	53.45	47.3	35.90	96.6	10.89	59.8
30.4	10.60	55.5	26.06	56.2	53.37	47.8	35.51	98.8	10.79	61.0
May 10.4	10.45	56.8	25.96	56.3	53.28	48.3	35.06	100.5	10.68	61.8
20.3	10.30	57.9	25.84	56.2	53.17	48.9	34.56	101.8	10.55	62.2
30.3	10.14	58.8	25.73	55.8	53.06	49.6	34.05	102.6	10.41	62.4
June 9.3	9.99	59.4	25.61	55.3	52.95	50.3	33.54	102.9	10.27	62.2
19.2	9.84	59.8	25.50	54.6	52.85	50.9	33.03	102.6	10.13	61.7
29.2	9.71	59.8	25.39	53.8	52.75	51.6	32.55	101.8	9.99	60.9
July 9.2	9.58	59.5	25.29	52.8	52.65	52.2	32.11	100.5	9.86	59.8
19.2	9.48	59.0	25.20	51.7	52.57	52.7	31.71	98.8	9.74	58.5
29.1	9.40	58.1	25.13	50.6	52.50	53.2	31.37	96.6	9.63	57.0
Aug. 8.1	9.34	57.0	25.08	49.4	52.45	53.6	31.10	94.1	9.55	55.3
18.1	9.30	55.7	25.05	48.3	52.42	53.8	30.90	91.2	9.49	53.5
28.1	9.30	54.1	25.05	47.2	52.41	53.9	30.77	88.1	9.45	51.7
Sept. 7.0	9.33	52.3	25.07	46.3	52.43	53.9	30.73	84.7	9.45	49.9
17.0	9.40	50.2	25.13	45.5	52.48	53.6	30.78	81.2	9.50	48.2
27.0	9.50	48.0	25.22	45.0	52.57	53.1	30.92	77.6	9.58	46.8
Oct. 6.9	9.64	45.6	25.35	44.7	52.69	52.3	31.15	74.1	9.71	45.6
16.9	9.83	43.2	25.52	44.8	52.85	51.3	31.48	70.6	9.89	44.7
26.9	10.06	40.7	25.74	45.2	53.05	50.0	31.90	67.2	10.11	44.2
Nov. 5.9	10.33	38.2	25.98	46.0	53.28	48.5	32.41	64.1	10.37	44.2
15.8	10.63	35.7	26.26	47.1	53.55	46.7	33.00	61.3	10.68	44.6
25.8	10.97	33.4	26.57	48.6	53.84	44.8	33.66	59.0	11.01	45.5
Dec. 5.8	11.33	31.2	26.90	50.4	54.16	42.7	34.37	57.1	11.36	46.8
15.7	11.70	29.3	27.23	52.4	54.48	40.6	35.11	55.7	11.73	48.6
25.7	12.07	27.8	27.56	54.7	54.81	38.5	35.86	54.9	12.09	50.7
35.7	12.43	26.6	27.87	57.0	55.12	36.5	36.59	54.7	12.43	53.1

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ν Leonis.		χ Ursæ Majoris.		β Leonis.		γ Ursæ Majoris.		π Virginis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m II 31	° ' - 0 16	h m II 40	° ' + 48 19	h m II 44	° ' + 15 6	h m II 48	° ' + 54 14	h m II 55	° ' + 7 9
	s	"	s	"	s	"	s	"	s	"
Jan. 0.7	54.14	45.7	50.65	19.7	1.85	78.7	38.60	19.3	49.15	48.7
10.7	54.45	47.8	51.07	19.0	2.17	77.0	39.07	18.7	49.47	46.7
20.7	54.73	49.7	51.46	18.9	2.46	75.5	39.51	18.7	49.77	45.0
30.6	54.98	51.5	51.82	19.3	2.73	74.4	39.90	19.3	50.04	43.5
Feb. 9.6	55.19	53.0	52.12	20.2	2.96	73.7	40.25	20.4	50.27	42.4
19.6	55.36	54.2	52.35	21.6	3.14	73.3	40.52	21.9	50.46	41.5
Mar. 1.6	55.48	55.2	52.53	23.3	3.28	73.2	40.72	23.9	50.61	40.9
11.5	55.56	55.9	52.64	25.3	3.37	73.4	40.85	26.2	50.71	40.7
21.5	55.60	56.4	52.68	27.6	3.42	73.9	40.91	28.6	50.77	40.7
31.5	55.60	56.6	52.67	29.9	3.43	74.6	40.90	31.2	50.80	40.9
Apr. 10.4	55.57	56.6	52.60	32.2	3.41	75.4	40.82	33.7	50.79	41.3
20.4	55.52	56.4	52.48	34.4	3.36	76.4	40.69	36.2	50.75	41.9
30.4	55.44	56.2	52.33	36.5	3.28	77.4	40.52	38.4	50.69	42.6
May 10.4	55.35	55.8	52.15	38.3	3.19	78.4	40.31	40.3	50.62	43.3
20.3	55.25	55.2	51.94	39.8	3.08	79.3	40.07	41.9	50.53	44.1
30.3	55.15	54.6	51.73	40.9	2.97	80.2	39.82	43.1	50.43	44.9
June 9.3	55.04	54.0	51.51	41.7	2.85	81.0	39.55	43.9	50.32	45.6
19.3	54.93	53.3	51.30	42.0	2.74	81.7	39.29	44.2	50.21	46.4
29.2	54.83	52.6	51.09	41.9	2.63	82.3	39.04	44.1	50.11	47.0
July 9.2	54.73	51.9	50.90	41.4	2.52	82.6	38.80	43.5	50.00	47.6
19.2	54.65	51.3	50.72	40.5	2.42	82.8	38.58	42.5	49.91	48.0
29.1	54.57	50.7	50.57	39.3	2.34	82.9	38.39	41.1	49.82	48.4
Aug. 8.1	54.51	50.1	50.44	37.6	2.27	82.7	38.23	39.3	49.74	48.6
18.1	54.47	49.7	50.35	35.7	2.21	82.4	38.10	37.1	49.68	48.7
28.1	54.46	49.4	50.29	33.4	2.18	81.8	38.01	34.6	49.65	48.6
Sept. 7.0	54.47	49.3	50.27	30.9	2.18	81.1	37.97	31.8	49.63	48.3
17.0	54.51	49.3	50.29	28.1	2.21	80.1	37.97	28.9	49.65	47.7
27.0	54.58	49.6	50.36	25.2	2.27	78.9	38.03	25.7	49.70	47.0
Oct. 7.0	54.70	50.2	50.48	22.2	2.37	77.4	38.15	22.5	49.79	46.0
16.9	54.85	51.0	50.66	19.1	2.51	75.7	38.33	19.2	49.92	44.8
26.9	55.04	52.1	50.89	16.0	2.69	73.9	38.57	15.9	50.09	43.3
Nov. 5.9	55.27	53.5	51.17	13.0	2.91	71.9	38.87	12.7	50.29	41.6
15.9	55.53	55.1	51.50	10.1	3.17	69.7	39.22	9.7	50.54	39.7
25.8	55.82	56.9	51.87	7.5	3.46	67.5	39.63	7.0	50.82	37.7
Dec. 5.8	56.13	58.9	52.28	5.1	3.77	65.3	40.07	4.6	51.13	35.6
15.8	56.46	61.0	52.71	3.2	4.10	63.1	40.54	2.7	51.45	33.4
25.7	56.78	63.1	53.15	1.7	4.43	61.0	41.02	1.2	51.78	31.3
35.7	57.10	65.2	53.58	0.7	4.76	59.2	41.50	0.3	52.10	29.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	♍ Virginis.		♌ Corvi.		♈ Draconis (H.)		♌ Corvi.		♌ Can. Venaticorum.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 12 0	° ' " + 9 16	h m 12 5	° ' " - 22 4	h m 12 7	° ' " + 78 9	h m 12 10	° ' " - 16 59	h m 12 11	° ' " + 41 12
	s	"	s	"	s	"	s	"	s	"
Jan. 0.7	11.12	47.3	3.23	8.8	34.11	32.8	44.04	33.2	10.93	19.9
10.7	11.44 .32	45.4 1.9	3.56 .33	11.2 2.4	35.27 1.16	32.7 0.1	44.37 .33	35.4 2.2	11.32 .39	18.7 1.2
20.7	11.74 .27	43.7 1.4	3.88 .28	13.6 2.4	36.38 1.01	33.2 1.2	44.68 .28	37.7 2.3	11.69 .37	18.0 0.7
30.7	12.01 .23	42.3 1.1	4.16 .24	16.0 2.4	37.39 .89	34.4 1.7	44.96 .25	40.0 2.2	12.03 .30	17.9 0.3
Feb. 9.6	12.24 .20	41.2 0.7	4.40 .21	18.4 2.3	38.28 .73	36.1 2.2	45.21 .21	42.2 2.1	12.33 .25	18.2 0.9
19.6	12.44 .15	40.5 0.5	4.61 .16	20.7 2.1	39.01 .55	38.3 2.7	45.42 .16	44.3 1.9	12.58 .20	19.1 1.2
Mar. 1.6	12.59 .11	40.0 0.1	4.77 .12	22.8 2.0	39.56 .35	41.0 2.9	45.58 .12	46.2 1.6	12.78 .12	20.3 1.7
11.5	12.70 .07	39.9 0.1	4.89 .07	24.8 1.8	39.91 .14	43.9 3.1	45.70 .12	47.8 1.5	12.92 .08	22.0 1.9
21.5	12.77 .03	40.0 0.4	4.96 .04	26.6 1.5	40.05 .05	47.0 3.1	45.78 .04	49.3 1.2	13.00 .03	23.9 2.1
31.5	12.80 .01	40.4 0.5	5.00 .00	28.1 1.3	40.00 .25	50.1 3.1	45.82 .01	50.5 1.0	13.03 .01	26.0 2.1
Apr. 10.5	12.79 .03	40.9 0.7	5.00 .02	29.4 1.0	39.75 .42	53.2 2.8	45.83 .02	51.5 0.8	13.02 .06	28.1 2.2
20.4	12.76 .06	41.6 0.8	4.98 .05	30.4 0.8	39.33 .58	56.0 2.5	45.81 .02	52.3 0.5	12.96 .10	30.3 2.1
30.4	12.70 .08	42.4 0.9	4.93 .08	31.2 0.5	38.75 .70	58.5 2.2	45.77 .07	52.8 0.3	12.86 .13	32.4 1.9
May 10.4	12.62 .09	43.3 0.8	4.85 .09	31.7 0.3	38.05 .81	60.7 1.7	45.70 .08	53.1 0.1	12.73 .14	34.3 1.7
20.4	12.53 .10	44.1 0.9	4.76 .10	32.0 0.1	37.24 .88	62.4 1.2	45.62 .09	53.2 0.1	12.59 .17	36.0 1.4
30.3	12.43 .10	45.0 0.8	4.66 .11	32.1 0.2	36.36 .92	63.6 0.7	45.53 .10	53.1 0.3	12.42 .17	37.4 1.0
June 9.3	12.33 .11	45.8 0.7	4.55 .12	31.9 0.4	35.44 .95	64.3 0.1	45.43 .12	52.8 0.4	12.25 .18	38.4 0.8
19.3	12.22 .11	46.5 0.7	4.43 .12	31.5 0.7	34.49 .93	64.4 0.4	45.31 .12	52.4 0.7	12.07 .18	39.2 0.3
29.2	12.11 .11	47.2 0.5	4.31 .12	30.8 0.8	33.56 .90	64.0 1.0	45.20 .11	51.7 0.8	11.89 .18	39.5 0.0
July 9.2	12.00 .10	47.7 0.4	4.19 .11	30.0 1.0	32.66 .84	63.0 1.5	45.09 .11	50.9 0.9	11.71 .16	39.5 0.4
19.2	11.90 .09	48.1 0.3	4.08 .11	29.0 1.1	31.82 .78	61.5 2.0	44.98 .11	50.0 1.0	11.55 .15	39.1 0.8
29.2	11.81 .08	48.4 0.1	3.97 .10	27.9 1.3	31.04 .68	59.5 2.4	44.87 .09	49.0 1.0	11.40 .17	38.3 1.1
Aug. 8.1	11.73 .06	48.5 0.0	3.87 .08	26.6 1.3	30.36 .57	57.1 2.8	44.78 .08	48.0 1.1	11.27 .11	37.2 1.5
18.1	11.67 .04	48.5 0.2	3.79 .05	25.3 1.3	29.79 .46	54.3 3.1	44.70 .06	46.9 1.1	11.16 .09	35.7 1.9
28.1	11.63 .02	48.3 0.4	3.74 .03	24.0 1.2	29.33 .32	51.2 3.4	44.64 .03	45.8 1.0	11.07 .05	33.8 2.1
Sept. 7.1	11.61 .01	47.9 0.7	3.71 .00	22.8 1.2	29.01 .18	47.8 3.6	44.61 .00	44.8 0.9	11.02 .02	31.7 2.3
17.0	11.62 .05	47.2 0.8	3.71 .04	21.6 1.0	28.83 .02	44.2 3.8	44.61 .04	43.9 0.7	11.00 .03	29.4 2.6
27.0	11.67 .08	46.4 1.2	3.75 .09	20.6 0.8	28.81 .13	40.4 3.7	44.65 .07	43.2 0.5	11.03 .07	26.8 2.8
Oct. 7.0	11.75 .12	45.2 1.3	3.84 .13	19.8 0.5	28.94 .29	36.6 3.7	44.72 .12	42.7 0.2	11.10 .12	24.0 3.0
16.9	11.87 .17	43.9 1.6	3.97 .17	19.3 0.1	29.23 .46	32.9 3.7	44.84 .17	42.5 0.1	11.22 .18	21.0 3.0
26.9	12.04 .20	42.3 1.8	4.14 .22	19.2 0.2	29.69 .62	29.2 3.4	45.01 .21	42.6 0.4	11.40 .22	18.0 3.0
Nov. 5.9	12.24 .25	40.5 1.9	4.36 .27	19.4 0.6	30.31 .77	25.8 3.1	45.22 .25	43.0 0.8	11.62 .27	15.0 2.9
15.9	12.49 .27	38.6 2.1	4.63 .29	20.0 1.0	31.08 .90	22.7 2.8	45.47 .28	43.8 1.2	11.89 .32	12.1 2.8
25.8	12.76 .31	36.5 2.2	4.92 .32	21.0 1.3	31.98 1.02	19.9 2.3	45.75 .31	45.0 1.5	12.21 .35	9.3 2.6
Dec. 5.8	13.07 .32	34.3 2.2	5.24 .34	22.3 1.7	33.00 1.10	17.6 1.7	46.06 .34	46.5 1.8	12.56 .38	6.7 2.3
15.8	13.39 .33	32.1 2.1	5.58 .35	24.0 2.0	34.10 1.16	15.9 1.2	46.40 .34	48.3 2.0	12.94 .39	4.4 2.0
25.8	13.72 .32	30.0 2.0	5.93 .34	26.0 2.2	35.26 1.17	14.7 0.5	46.74 .33	50.3 2.1	13.33 .40	2.4 1.4
35.7	14.04	28.0	6.27	28.2	36.43	14.2	47.07	52.4	13.73	1.0

FIXED STARS, 1901.
(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Chamæleontis.		6 (B) Ursæ Minoris.		η Virginis.		α^1 Crucis.		δ^2 Corvi.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 12 12	° -78 45	h m 12 13	° +88 14	h m 12 14	° - 0 7	h m 12 21	° -62 32	h m 12 24	° -15 57
	s	"	s	"	s	"	s	"	s	"
Jan. 0.7	35.40	31.3	76.9	29.1	51.55	7.1	7.16	49.8	45.60	52.7
10.7	36.62 1.22	33.0 1.7	84.1 7.2	29.1 0.0	51.87 .32	9.2 2.1	7.74 .58	51.7 1.9	45.94 .34	54.9 2.2
20.7	37.76 1.14	35.3 2.3	90.9 6.8	29.8 0.7	52.18 .31	11.2 2.0	8.29 .55	54.1 2.4	46.25 .31	57.2 2.3
30.7	38.78 1.02	38.0 2.7	97.3 6.4	31.1 1.3	52.46 .28	12.9 1.7	8.78 .49	56.9 2.8	46.54 .29	59.4 2.2
Feb. 9.6	39.66 .88	41.1 3.1	103.0 5.7	33.0 1.9	52.70 .24	14.4 1.5	9.22 .44	59.9 3.0	46.79 .25	61.5 2.1
	.72	41.1 3.5	103.0 4.6	33.0 2.4	52.70 .20	14.4 1.3	9.22 .36	59.9 3.3	46.79 .22	61.5 2.0
19.6	40.38	44.6	107.6	35.4	52.90	15.7	9.58	63.2	47.01	63.5
Mar. 1.6	40.94 .56	48.2 3.6	111.1 3.5	38.1 2.7	53.07 .17	16.7 1.0	9.88 .30	66.7 3.5	47.19 .15	65.3 1.8
11.5	41.33 .39	52.0 3.8	113.4 2.3	41.1 3.0	53.19 .12	17.4 0.7	10.09 .21	70.2 3.5	47.32 .13	66.9 1.6
21.5	41.55 .22	55.8 3.8	114.3 0.9	44.3 3.2	53.27 .08	17.8 0.4	10.23 .14	73.7 3.5	47.42 .10	68.3 1.4
31.5	41.60 .05	59.5 3.7	113.8 0.5	47.5 3.2	53.32 .05	18.0 0.2	10.30 .07	77.1 3.4	47.48 .06	69.5 1.2
	.12	59.5 3.6	113.8 1.7	47.5 3.0	53.32 .01	18.0 0.0	10.30 .00	77.1 3.2	47.48 .02	69.5 0.9
Apr. 10.5	41.48	63.1	112.1	50.5	53.33	18.0	10.30	80.3	47.50	70.4
20.4	41.22 .26	66.6 3.5	109.1 3.0	53.4 2.9	53.31 .02	17.8 0.2	10.24 .06	83.3 3.0	47.50 .00	71.2 0.8
30.4	40.81 .41	69.7 3.1	105.0 4.1	55.9 2.5	53.27 .04	17.5 0.3	10.12 .12	86.0 2.7	47.47 .03	71.6 0.4
May 10.4	40.26 .55	72.5 2.8	99.9 5.1	58.0 2.1	53.21 .06	17.0 0.5	9.95 .17	88.4 2.4	47.41 .06	71.9 0.3
20.4	39.60 .66	74.9 2.4	94.1 5.8	59.7 1.7	53.14 .07	16.4 0.6	9.73 .22	90.4 2.0	47.34 .07	72.0 0.1
	.76	74.9 2.0	94.1 6.4	59.7 1.1	53.14 .09	16.4 0.6	9.73 .26	90.4 1.6	47.34 .08	72.0 0.1
30.3	38.84	76.9	87.7	60.8	53.05	15.8	9.47	92.0	47.26	71.9
June 9.3	38.00 .84	78.4 1.5	81.0 6.7	61.4 0.6	52.95 .10	15.1 0.7	9.18 .29	93.1 1.1	47.16 .10	71.6 0.3
19.3	37.10 .90	79.3 0.9	74.1 6.9	61.4 0.0	52.85 .10	14.4 0.7	8.86 .32	93.7 0.6	47.05 .11	71.1 0.5
29.2	36.17 .93	79.8 0.5	67.2 6.9	60.8 0.6	52.74 .11	13.7 0.7	8.53 .33	93.8 0.1	46.94 .11	70.5 0.6
July 9.2	35.22 .95	79.6 0.2	60.5 6.7	59.6 1.2	52.64 .10	13.1 0.6	8.19 .34	93.5 0.3	46.83 .11	69.8 0.7
	.92	79.6 0.7	60.5 6.4	59.6 1.6	52.64 .11	13.1 0.7	8.19 .34	93.5 0.8	46.83 .12	69.8 0.8
19.2	34.30	78.9	54.1	58.0	52.53	12.4	7.85	92.7	46.71	69.0
29.2	33.42 .88	77.7 1.2	48.3 5.8	55.9 2.1	52.44 .09	11.8 0.6	7.52 .33	91.4 1.3	46.60 .11	68.1 0.9
Aug. 8.1	32.62 .80	76.0 1.7	43.1 5.2	53.3 2.6	52.35 .09	11.3 0.5	7.22 .30	89.7 1.7	46.50 .10	67.1 1.0
18.1	31.93 .69	73.8 2.2	38.7 4.4	50.3 3.0	52.28 .07	10.9 0.4	6.96 .26	87.6 2.1	46.42 .08	66.1 1.0
28.1	31.37 .56	71.3 2.5	35.1 3.6	47.1 3.2	52.22 .06	10.7 0.2	6.75 .21	85.2 2.4	46.35 .07	65.1 1.0
	.39	71.3 2.9	35.1 2.7	47.1 3.5	52.22 .03	10.7 0.1	6.75 .14	85.2 2.6	46.35 .05	65.1 1.0
Sept. 7.1	30.98	68.4	32.4	43.6	52.19	10.6	6.61	82.6	46.30	64.1
17.0	30.77 .21	65.4 3.0	30.7 1.7	39.9 3.7	52.19 .00	10.7 0.1	6.53 .08	79.8 2.8	46.29 .01	63.3 0.8
27.0	30.76 .01	62.3 3.1	30.0 0.7	36.1 3.8	52.22 .03	11.0 0.3	6.54 .01	77.1 2.7	46.31 .02	62.7 0.6
Oct. 7.0	30.97 .21	59.3 3.0	30.3 0.3	32.3 3.8	52.29 .07	11.5 0.5	6.64 .10	74.4 2.7	46.37 .06	62.3 0.4
16.9	31.38 .41	56.4 2.9	31.8 1.5	28.5 3.8	52.40 .11	12.3 0.8	6.82 .18	71.9 2.5	46.48 .11	62.1 0.2
	.62	56.4 2.6	31.8 2.5	28.5 3.6	52.40 .16	12.3 1.1	6.82 .28	71.9 2.1	46.48 .15	62.1 0.1
26.9	32.00	53.8	34.3	24.9	52.56	13.4	7.10	69.8	46.63	62.2
Nov. 5.9	32.80 .80	51.6 2.2	37.8 3.5	21.5 3.4	52.75 .19	14.7 1.3	7.46 .36	68.0 1.8	46.83 .20	62.7 0.5
15.9	33.77 .97	49.9 1.7	42.3 4.5	18.5 3.0	52.98 .23	16.3 1.6	7.90 .44	66.7 1.3	47.07 .24	63.5 0.8
25.8	34.87 1.10	48.7 1.2	47.6 5.3	15.8 2.7	53.25 .27	18.1 1.8	8.41 .51	65.9 0.8	47.34 .27	64.6 1.1
Dec. 5.8	36.07 1.20	48.1 0.6	53.7 6.1	13.6 2.2	53.55 .30	20.0 1.9	8.97 .56	65.7 0.2	47.65 .31	66.1 1.5
	1.26	48.1 0.1	53.7 6.7	13.6 1.6	53.55 .32	20.0 2.1	8.97 .59	65.7 0.4	47.65 .32	66.1 1.7
15.8	37.33	48.2	60.4	12.0	53.87	22.1	9.56	66.1	47.97	67.8
25.8	38.60 1.27	48.9 0.7	67.4 7.0	11.0 1.0	54.19 .32	24.2 2.1	10.16 .60	67.2 1.1	48.31 .34	69.8 2.0
35.7	39.85 1.25	50.3 1.4	74.6 7.2	10.7 0.3	54.52 .33	26.3 2.1	10.74 .58	68.8 1.6	48.64 .33	71.9 2.1

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

363

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Can. Ven.		β Corvi.		κ Draconis.		γ Virginis (mean).		ζ Com. Berenices.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 12 29	° ' " +41 53	h m 12 29	° ' " -22 50	h m 12 29	° ' " +70 19	h m 12 36	° ' " -05 54	h m 12 46	° ' " +28 4
	s	"	s	"	s	"	s	"	s	"
Jan. 0.7	3.29	23.2	12.27	56.3	15.65	36.9	39.63	29.6	53.29	29.9
10.7	3.69	21.9	12.61	58.5	16.39	36.3	39.95	31.7	53.64	28.1
20.7	4.07	21.1	12.94	60.8	17.12	36.4	40.26	33.6	53.98	26.8
30.7	4.42	20.8	13.24	63.1	17.79	37.0	40.55	35.4	54.30	25.9
Feb. 9.6	4.73	21.0	13.51	65.4	18.40	38.3	40.80	37.0	54.59	25.5
19.6	5.00	21.8	13.74	67.7	18.91	40.1	41.02	38.3	54.84	25.5
Mar. 1.6	5.22	23.0	13.92	69.8	19.32	42.4	41.20	39.3	55.05	25.9
11.6	5.38	24.6	14.07	71.8	19.61	45.1	41.35	40.0	55.21	26.8
21.5	5.48	26.6	14.17	73.6	19.78	48.0	41.45	40.5	55.33	28.0
31.5	5.53	28.7	14.23	75.1	19.83	51.0	41.52	40.8	55.41	29.5
Apr. 10.5	5.54	30.9	14.26	76.5	19.76	54.0	41.55	40.8	55.44	31.1
20.4	5.49	33.2	14.26	77.6	19.58	57.0	41.56	40.6	55.44	32.8
30.4	5.41	35.4	14.23	78.5	19.31	59.7	41.54	40.3	55.40	34.6
May 10.4	5.30	37.5	14.18	79.1	18.95	62.1	41.49	39.8	55.34	36.4
20.4	5.16	39.3	14.11	79.5	18.53	64.1	41.43	39.2	55.26	38.0
30.3	5.00	40.9	14.02	79.6	18.05	65.7	41.36	38.6	55.15	39.5
June 9.3	4.83	42.2	13.92	79.6	17.54	66.7	41.27	37.9	55.03	40.8
19.3	4.64	43.1	13.81	79.3	17.00	67.3	41.17	37.2	54.90	41.8
29.3	4.46	43.6	13.69	78.8	16.46	67.3	41.06	36.5	54.77	42.6
July 9.2	4.27	43.7	13.57	78.1	15.94	66.8	40.95	35.8	54.63	43.1
19.2	4.10	43.4	13.45	77.2	15.43	65.8	40.84	35.2	54.49	43.3
29.2	3.93	42.8	13.33	76.2	14.95	64.3	40.74	34.6	54.35	43.2
Aug. 8.1	3.77	41.8	13.22	75.0	14.52	62.3	40.63	34.1	54.22	42.8
18.1	3.64	40.4	13.12	73.8	14.14	59.9	40.54	33.7	54.10	42.0
28.1	3.53	38.6	13.04	72.5	13.83	57.1	40.47	33.4	54.01	41.0
Sept. 7.1	3.45	36.6	12.99	71.3	13.59	54.0	40.42	33.2	53.93	39.6
17.0	3.41	34.2	12.97	70.1	13.43	50.7	40.39	33.2	53.88	38.0
27.0	3.41	31.6	12.99	69.0	13.36	47.1	40.40	33.5	53.87	36.1
Oct. 7.0	3.45	28.8	13.05	68.2	13.39	43.4	40.45	34.0	53.90	34.0
17.0	3.55	25.9	13.15	67.6	13.52	39.7	40.54	34.7	53.97	31.6
26.9	3.69	22.8	13.30	67.3	13.76	36.0	40.67	35.7	54.09	29.1
Nov. 5.9	3.89	19.7	13.50	67.4	14.11	32.4	40.85	36.9	54.26	26.4
15.9	4.15	16.6	13.75	67.9	14.55	29.0	41.06	38.4	54.47	23.7
25.8	4.45	13.7	14.03	68.7	15.09	26.0	41.32	40.2	54.73	20.9
Dec. 5.8	4.79	11.0	14.35	69.9	15.71	23.3	41.61	42.1	55.03	18.3
15.8	5.15	8.5	14.68	71.4	16.39	21.2	41.92	44.1	55.35	15.8
25.8	5.54	6.5	15.03	73.2	17.12	19.6	42.24	46.2	55.69	13.5
35.7	5.94	4.8	15.38	75.2	17.87	18.5	42.56	48.3	56.04	11.5

FIXED STARS, 1901.
(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	32° Camelop. (H.)		α Can. Ven.		δ Muscæ.		ε Virginis.		θ Virginis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 12 48	° ' " +83 56	h m 12 51	° ' " +38 50	h m 12 55	° ' " -71 0	h m 12 57	° ' " +11 29	h m 13 4	° ' " -5 0
	s	"	s	"	s	"	s	"	s	"
Jan. 0.8	20.00	38.4	24.38	51.9	29.12	39.5	15.68	18.1	50.23	42.0
	2.14	0.6	.39	1.6	.82	1.3	.33	2.0	.32	2.1
10.7	22.14	37.8	24.77	50.3	29.94	40.8	16.01	16.1	50.55	44.1
	2.12	0.2	.37	1.1	.79	1.8	.32	1.7	.32	1.9
20.7	24.26	38.0	25.14	49.2	30.73	42.6	16.33	14.4	50.87	46.0
	2.02	0.8	.35	0.6	.73	2.3	.30	1.5	.31	1.9
30.7	26.28	38.8	25.49	48.6	31.46	44.9	16.63	12.9	51.18	47.9
	1.85	1.4	.32	0.0	.67	2.7	.27	1.1	.27	1.7
Feb. 9.7	28.13	40.2	25.81	48.6	32.13	47.6	16.90	11.8	51.45	49.6
	1.61	1.9	.28	0.5	.58	3.0	.24	0.8	.24	1.5
19.6	29.74	42.1	26.09	49.1	32.71	50.6	17.14	11.0	51.69	51.1
	1.31	2.4	.23	0.9	.49	3.3	.21	0.4	.21	1.2
Mar. 1.6	31.05	44.5	26.32	50.0	33.20	53.9	17.35	10.6	51.90	52.3
	.96	2.8	.19	1.4	.40	3.5	.16	0.0	.17	1.0
11.6	32.01	47.3	26.51	51.4	33.60	57.4	17.51	10.6	52.07	53.3
	.59	3.1	.13	1.8	.30	3.5	.13	0.2	.14	0.7
21.5	32.60	50.4	26.64	53.2	33.90	60.9	17.64	10.8	52.21	54.0
	.20	3.1	.08	1.9	.19	3.6	.08	0.5	.09	0.4
31.5	32.80	53.5	26.72	55.1	34.09	64.5	17.72	11.3	52.30	54.4
	.18	3.2	.03	2.2	.10	3.5	.05	0.8	.07	0.3
Apr. 10.5	32.62	56.7	26.75	57.3	34.19	68.0	17.77	12.1	52.37	54.7
	.56	3.1	.01	2.2	.00	3.3	.02	0.9	.03	0.0
20.5	32.06	59.8	26.74	59.5	34.19	71.3	17.79	13.0	52.40	54.7
	.89	2.8	.05	2.3	.08	3.1	.01	1.1	.01	0.1
30.4	31.17	62.6	26.69	61.8	34.11	74.4	17.78	14.1	52.41	54.6
	1.20	2.5	.08	2.1	.18	2.9	.03	1.1	.03	0.3
May 10.4	29.97	65.1	26.61	63.9	33.93	77.3	17.75	15.2	52.39	54.3
	1.46	2.1	.11	1.9	.25	2.6	.06	1.1	.04	0.4
20.4	28.51	67.2	26.50	65.8	33.68	79.9	17.69	16.3	52.35	53.9
	1.66	1.6	.13	1.7	.33	2.1	.07	1.1	.06	0.5
30.4	26.85	68.8	26.37	67.5	33.35	82.0	17.62	17.4	52.29	53.4
	1.82	1.1	.15	1.5	.39	1.7	.09	1.0	.07	0.6
June 9.3	25.03	69.9	26.22	69.0	32.96	83.7	17.53	18.4	52.22	52.8
	.91	0.6	.16	1.1	.44	1.2	.10	0.8	.09	0.6
19.3	23.12	70.5	26.06	70.1	32.52	84.9	17.43	19.3	52.13	52.2
	1.96	0.0	.18	0.7	.48	1.7	.11	0.9	.10	0.7
29.3	21.16	70.5	25.88	70.8	32.04	85.7	17.32	20.1	52.03	51.5
	1.96	0.6	.17	0.4	.51	0.2	.11	0.7	.11	0.7
July 9.2	19.20	69.9	25.71	71.2	31.53	85.9	17.21	20.8	51.92	50.8
	1.91	1.1	.18	0.0	.52	0.3	.12	0.6	.11	0.7
19.2	17.29	68.8	25.53	71.2	31.01	85.6	17.09	21.4	51.81	50.1
	1.81	1.6	.17	0.4	.52	0.8	.12	0.3	.12	0.6
29.2	15.48	67.2	25.36	70.8	30.49	84.8	16.97	21.7	51.69	49.5
	1.67	2.1	.16	0.7	.49	1.3	.11	0.2	.11	0.6
Aug. 8.2	13.81	65.1	25.20	70.1	30.00	83.5	16.86	21.9	51.58	48.9
	1.51	2.5	.14	1.2	.46	1.7	.11	0.1	.11	0.6
18.1	12.30	62.6	25.06	68.9	29.54	81.8	16.75	21.8	51.47	48.3
	1.30	3.0	.13	1.5	.39	2.2	.09	0.2	.09	0.5
28.1	11.00	59.6	24.93	67.4	29.15	79.6	16.66	21.6	51.38	47.8
	1.06	3.2	.10	1.8	.31	2.5	.07	0.5	.07	0.3
Sept. 7.1	9.94	56.4	24.83	65.6	28.84	77.1	16.59	21.1	51.31	47.5
	.81	3.5	.06	2.1	.22	2.7	.05	0.7	.05	0.2
17.1	9.13	52.9	24.77	63.5	28.62	74.4	16.54	20.4	51.26	47.3
	.52	3.7	.03	2.4	.10	2.9	.01	1.0	.02	0.0
27.0	8.61	49.2	24.74	61.1	28.52	71.5	16.53	19.4	51.24	47.3
	.22	3.8	.02	2.7	.02	2.9	.02	1.2	.02	0.2
Oct. 7.0	8.39	45.4	24.76	58.4	28.54	68.6	16.55	18.2	51.26	47.5
	.10	3.8	.06	2.9	.15	2.9	.07	1.4	.06	0.5
17.0	8.49	41.6	24.82	55.5	28.69	65.7	16.62	16.8	51.32	48.0
	.42	3.8	.12	2.9	.28	2.6	.11	1.7	.11	0.7
26.9	8.91	37.8	24.94	52.6	28.97	63.1	16.73	15.1	51.43	48.7
	.75	3.6	.17	3.1	.41	2.4	.15	1.9	.15	0.9
Nov. 5.9	9.66	34.2	25.11	49.5	29.38	60.7	16.88	13.2	51.58	49.6
	1.06	3.4	.22	3.1	.52	1.9	.20	2.1	.20	1.3
15.9	10.72	30.8	25.33	46.4	29.90	58.8	17.08	11.1	51.78	50.9
	1.36	3.0	.27	3.0	.64	1.4	.23	2.2	.24	1.5
25.9	12.08	27.8	25.60	43.4	30.54	57.4	17.31	8.9	52.02	52.4
	1.62	2.7	.31	2.9	.71	0.9	.28	2.3	.27	1.7
Dec. 5.8	13.70	25.1	25.91	40.5	31.25	56.5	17.59	6.6	52.29	54.1
	1.85	2.1	.35	2.6	.77	0.3	.30	2.3	.30	1.8
15.8	15.55	23.0	26.26	37.9	32.02	56.2	17.89	4.3	52.59	55.9
	2.02	1.6	.36	2.3	.81	0.3	.32	2.2	.32	2.0
25.8	17.57	21.4	26.62	35.6	32.83	56.5	18.21	2.1	52.91	57.9
	2.12	0.9	.38	1.8	.82	0.9	.33	2.1	.32	2.1
35.8	19.69	20.5	27.00	33.8	33.65	57.4	18.54	0.0	53.23	60.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	20 Can. Ven.		α Virginis. (<i>Spica</i> .)		κ Octantis.		ζ Virginis.		B. A. C. 4536.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 13 13	° ' " +41 5	h m 13 19	° ' " -10 38	h m 13 24	° ' " -85 16	h m 13 29	° ' " -0 5	h m 13 30	° ' " +37 40
	s	"	s	"	s	"	s	"	s	"
Jan. 0.8	6.59	19.1	59.38	42.3	54.18	27.6	39.52	28.3	22.86	65.4
10.8	6.98	17.3	59.71	44.3	57.16	28.1	39.85	30.4	23.23	63.5
20.7	7.36	16.1	60.04	46.3	60.10	29.2	40.17	32.3	23.60	62.0
30.7	7.73	15.4	60.35	48.2	62.92	30.9	40.48	34.0	23.96	61.1
Feb. 9.7	8.07	15.3	60.63	50.0	65.55	33.1	40.76	35.5	24.30	60.7
19.6	8.38	15.7	60.89	51.6	67.93	35.7	41.02	36.8	24.60	60.9
Mar. 1.6	8.64	16.6	61.11	53.1	70.02	38.7	41.25	37.8	24.87	61.5
11.6	8.85	18.0	61.30	54.3	71.77	42.0	41.44	38.5	25.09	62.7
21.6	9.01	19.8	61.45	55.3	73.16	45.5	41.59	38.9	25.27	64.2
31.6	9.12	21.8	61.57	56.1	74.17	49.1	41.71	39.0	25.40	66.1
Apr. 10.5	9.18	24.1	61.65	56.7	74.79	52.8	41.80	38.9	25.48	68.3
20.5	9.19	26.5	61.70	57.0	75.01	56.5	41.86	38.6	25.52	70.6
30.5	9.16	28.9	61.72	57.2	74.85	60.0	41.88	38.2	25.51	72.9
May 10.4	9.10	31.2	61.72	57.2	74.29	63.4	41.89	37.6	25.47	75.2
20.4	9.00	33.3	61.69	57.1	73.37	66.5	41.86	36.9	25.40	77.4
June 30.4	8.87	35.3	61.64	56.8	72.11	69.3	41.82	36.2	25.30	79.4
9.3	8.72	36.9	61.58	56.4	70.54	71.7	41.76	35.4	25.18	81.1
19.3	8.56	38.2	61.50	55.9	68.69	73.7	41.68	34.6	25.03	82.6
29.3	8.38	39.2	61.40	55.4	66.63	75.1	41.58	33.9	24.87	83.7
July 9.3	8.19	39.7	61.29	54.8	64.40	76.0	41.48	33.1	24.70	84.4
19.2	8.00	39.9	61.17	54.1	62.08	76.4	41.36	32.5	24.52	84.8
29.2	7.81	39.6	61.05	53.4	59.73	76.2	41.24	31.9	24.34	84.8
Aug. 8.2	7.63	39.0	60.93	52.7	57.43	75.4	41.12	31.4	24.16	84.4
18.2	7.46	37.9	60.81	52.0	55.27	74.1	41.00	31.0	23.98	83.6
28.1	7.30	36.5	60.71	51.3	53.32	72.3	40.89	30.7	23.82	82.4
Sept. 7.1	7.17	34.7	60.62	50.7	51.67	70.0	40.80	30.6	23.69	80.8
17.1	7.07	32.5	60.56	50.2	50.37	67.4	40.72	30.7	23.58	78.9
27.0	7.01	30.1	60.53	49.9	49.50	64.4	40.68	30.9	23.50	76.7
Oct. 7.0	7.00	27.4	60.53	49.8	49.10	61.3	40.68	31.4	23.47	74.2
17.0	7.03	24.5	60.58	49.8	49.20	58.2	40.71	32.1	23.48	71.4
Nov. 27.0	7.12	21.4	60.68	50.2	49.81	55.1	40.79	33.1	23.55	68.5
5.9	7.26	18.2	60.82	50.8	50.93	52.2	40.92	34.3	23.67	65.4
15.9	7.46	14.9	61.01	51.7	52.52	49.6	41.09	35.8	23.84	62.2
25.9	7.71	11.8	61.24	52.9	54.53	47.4	41.31	37.4	24.07	59.1
Dec. 5.9	8.01	8.8	61.51	54.3	56.90	45.7	41.56	39.3	24.34	56.1
15.8	8.35	6.0	61.81	55.9	59.54	44.6	41.84	41.3	24.65	53.2
25.8	8.71	3.6	62.12	57.7	62.38	44.2	42.15	43.3	25.00	50.6
35.8	9.10	1.5	62.45	59.7	65.33	44.2	42.47	45.4	25.36	48.4

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>m</i> Virginis.		<i>η</i> Ursæ Majoris.		<i>η</i> Bootis.		<i>θ</i> Apodis.		<i>β</i> Centauri.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 13 36	° ' " - 8 12	h m 13 43	° ' " +49 47	h m 13 49	° ' " +18 53	h m 13 55	° ' " -76 18	h m 13 56	° ' " -59 53
	s	"	s	"	s	"	s	"	s	"
Jan. 0.8	25.57	14.8	38.23	67.0	58.60	27.2	41.25	52.7	50.93	30.4
10.8	25.90 ^{.33}	16.7 ^{1.9}	38.65 ^{.42}	65.0 ^{2.0}	58.93 ^{.33}	25.1 ^{2.1}	42.36 ^{1.11}	53.0 ^{0.3}	51.50 ^{.57}	31.1 ^{0.7}
20.8	26.22 ^{.32}	18.6 ^{1.9}	39.08 ^{.43}	63.7 ^{1.3}	59.26 ^{.33}	23.2 ^{1.9}	43.48 ^{1.12}	53.8 ^{0.8}	52.08 ^{.58}	32.3 ^{1.2}
30.7	26.54 ^{.32}	20.5 ^{1.9}	39.50 ^{.40}	62.9 ^{0.8}	59.59 ^{.30}	21.8 ^{1.4}	44.57 ^{1.09}	55.2 ^{1.4}	52.63 ^{.53}	33.9 ^{1.6}
Feb. 9.7	26.83 ^{.29}	22.2 ^{1.7}	39.90 ^{.37}	62.7 ^{0.2}	59.89 ^{.28}	20.7 ^{0.6}	45.60 ^{1.03}	57.0 ^{1.8}	53.16 ^{.50}	35.9 ^{2.0}
	26.83 ^{.26}	22.2 ^{1.5}	39.90 ^{.37}	62.7 ^{0.5}	59.89 ^{.28}	20.7 ^{0.6}	45.60 ^{.97}	57.0 ^{2.3}	53.16 ^{.50}	35.9 ^{2.3}
19.7	27.09	23.7	40.27	63.2	60.17	20.1	46.57	59.3	53.66	38.2
Mar. 1.6	27.33 ^{.24}	25.0 ^{1.3}	40.59 ^{.32}	64.2 ^{1.0}	60.42 ^{.25}	19.9 ^{0.2}	47.44 ^{.87}	62.0 ^{2.7}	54.10 ^{.44}	40.8 ^{2.6}
11.6	27.53 ^{.16}	26.1 ^{1.1}	40.86 ^{.27}	65.8 ^{1.6}	60.63 ^{.21}	20.1 ^{0.2}	48.20 ^{.76}	65.0 ^{3.0}	54.49 ^{.39}	43.6 ^{2.8}
21.6	27.69 ^{.20}	27.0 ^{0.9}	41.08 ^{.22}	67.8 ^{2.0}	60.81 ^{.18}	20.7 ^{0.6}	48.84 ^{.64}	68.2 ^{3.2}	54.82 ^{.27}	46.5 ^{2.9}
31.6	27.82 ^{.13}	27.5 ^{0.5}	41.24 ^{.16}	70.2 ^{2.4}	60.94 ^{.13}	21.6 ^{0.9}	49.36 ^{.52}	71.6 ^{3.4}	55.09 ^{.21}	49.5 ^{3.0}
	27.82 ^{.10}	27.5 ^{0.4}	41.24 ^{.10}	70.2 ^{2.6}	60.94 ^{.11}	21.6 ^{1.2}	49.36 ^{.39}	71.6 ^{3.4}	55.09 ^{.21}	49.5 ^{2.9}
Apr. 10.5	27.92	27.9	41.34	72.8	61.05	22.8	49.75	75.0	55.30	52.4
20.5	27.99 ^{.07}	28.1 ^{0.2}	41.39 ^{.05}	75.5 ^{2.7}	61.12 ^{.07}	24.2 ^{1.4}	50.00 ^{.25}	78.4 ^{3.4}	55.45 ^{.15}	55.3 ^{2.9}
30.5	28.02 ^{.03}	28.1 ^{0.0}	41.38 ^{.01}	78.3 ^{2.8}	61.15 ^{.03}	25.7 ^{1.5}	50.12 ^{.12}	81.8 ^{3.4}	55.53 ^{.08}	58.1 ^{2.8}
May 10.5	28.03 ^{.01}	28.0 ^{0.1}	41.32 ^{.06}	81.0 ^{2.7}	61.16 ^{.01}	27.3 ^{1.6}	50.11 ^{.01}	85.0 ^{3.2}	55.56 ^{.03}	60.7 ^{2.6}
20.4	28.02 ^{.01}	27.7 ^{0.3}	41.23 ^{.09}	83.5 ^{2.5}	61.14 ^{.02}	29.0 ^{1.7}	49.96 ^{.15}	88.0 ^{3.0}	55.54 ^{.02}	63.1 ^{2.4}
	28.02 ^{.03}	27.7 ^{0.4}	41.23 ^{.14}	83.5 ^{2.3}	61.14 ^{.05}	29.0 ^{1.5}	49.96 ^{.26}	88.0 ^{2.7}	55.54 ^{.09}	63.1 ^{2.1}
30.4	27.99	27.3	41.09	85.8	61.09	30.5	49.70	90.7	55.45	65.2
June 9.4	27.93 ^{.06}	26.8 ^{0.5}	40.92 ^{.17}	87.8 ^{2.0}	61.03 ^{.06}	32.0 ^{1.5}	49.31 ^{.39}	93.1 ^{2.4}	55.32 ^{.13}	67.1 ^{1.9}
19.3	27.86 ^{.07}	26.3 ^{0.5}	40.72 ^{.20}	89.4 ^{1.6}	60.94 ^{.09}	33.3 ^{1.3}	48.81 ^{.58}	95.1 ^{2.0}	55.14 ^{.18}	68.5 ^{1.4}
29.3	27.76 ^{.10}	25.7 ^{0.6}	40.50 ^{.22}	90.6 ^{1.2}	60.83 ^{.11}	34.4 ^{1.1}	48.23 ^{.50}	96.7 ^{1.6}	54.91 ^{.23}	69.6 ^{1.1}
July 9.3	27.66 ^{.10}	25.1 ^{0.6}	40.26 ^{.24}	91.4 ^{0.8}	60.71 ^{.12}	35.3 ^{0.9}	47.56 ^{.67}	97.7 ^{1.0}	54.64 ^{.27}	70.2 ^{0.6}
	27.66 ^{.12}	25.1 ^{0.7}	40.26 ^{.25}	91.4 ^{0.4}	60.71 ^{.13}	35.3 ^{0.7}	47.56 ^{.72}	97.7 ^{0.6}	54.64 ^{.29}	70.2 ^{0.2}
19.3	27.54	24.4	40.01	91.8	60.58	36.0	46.84	98.3	54.35	70.4
29.2	27.42 ^{.12}	23.7 ^{0.7}	39.76 ^{.25}	91.6 ^{0.2}	60.44 ^{.14}	36.4 ^{0.4}	46.08 ^{.76}	98.3 ^{0.0}	54.04 ^{.31}	70.2 ^{0.2}
Aug. 8.2	27.29 ^{.13}	23.1 ^{0.6}	39.51 ^{.24}	91.0 ^{0.6}	60.29 ^{.15}	36.6 ^{0.2}	45.32 ^{.75}	97.8 ^{0.5}	53.72 ^{.32}	69.5 ^{0.7}
18.2	27.17 ^{.12}	22.5 ^{0.6}	39.27 ^{.23}	90.0 ^{1.0}	60.15 ^{.14}	36.4 ^{0.2}	44.57 ^{.69}	96.8 ^{1.0}	53.40 ^{.30}	68.4 ^{1.1}
28.2	27.06 ^{.11}	21.9 ^{0.6}	39.04 ^{.23}	88.5 ^{1.5}	60.02 ^{.13}	36.0 ^{0.4}	43.88 ^{.69}	95.2 ^{1.6}	53.10 ^{.32}	66.9 ^{1.5}
	27.06 ^{.10}	21.9 ^{0.4}	39.04 ^{.20}	88.5 ^{1.9}	60.02 ^{.12}	36.0 ^{0.6}	43.88 ^{.62}	95.2 ^{2.0}	53.10 ^{.26}	66.9 ^{1.9}
Sept. 7.1	26.96	21.5	38.84	86.6	59.90	35.4	43.26	93.2	52.84	65.0
17.1	26.88 ^{.08}	21.1 ^{0.4}	38.68 ^{.16}	84.3 ^{2.3}	59.80 ^{.10}	34.4 ^{1.0}	42.75 ^{.51}	90.9 ^{2.3}	52.62 ^{.22}	62.9 ^{2.1}
27.1	26.83 ^{.05}	20.9 ^{0.2}	38.55 ^{.13}	81.7 ^{2.6}	59.73 ^{.07}	33.1 ^{1.3}	42.37 ^{.38}	88.2 ^{2.7}	52.46 ^{.16}	60.5 ^{2.4}
Oct. 7.0	26.82 ^{.01}	20.9 ^{0.0}	38.47 ^{.08}	78.7 ^{3.0}	59.69 ^{.04}	31.6 ^{1.5}	42.14 ^{.29}	85.3 ^{2.9}	52.38 ^{.01}	58.0 ^{2.5}
17.0	26.85 ^{.03}	21.1 ^{0.2}	38.45 ^{.02}	75.5 ^{3.2}	59.70 ^{.01}	29.8 ^{1.8}	42.09 ^{.05}	82.3 ^{3.0}	52.37 ^{.01}	55.5 ^{2.5}
	26.85 ^{.08}	21.1 ^{0.5}	38.45 ^{.03}	75.5 ^{3.3}	59.70 ^{.05}	29.8 ^{2.0}	42.09 ^{.13}	82.3 ^{3.0}	52.37 ^{.09}	55.5 ^{2.4}
27.0	26.93	21.6	38.48	72.2	59.75	27.8	42.22	79.3	52.46	53.1
Nov. 6.0	27.06 ^{.13}	22.3 ^{0.7}	38.58 ^{.10}	68.7 ^{3.5}	59.85 ^{.10}	25.5 ^{2.3}	42.54 ^{.32}	76.5 ^{2.8}	52.64 ^{.18}	50.9 ^{2.2}
15.9	27.23 ^{.17}	23.3 ^{1.0}	38.75 ^{.17}	65.2 ^{3.5}	59.99 ^{.14}	23.1 ^{2.4}	43.03 ^{.49}	73.9 ^{2.6}	52.91 ^{.27}	48.9 ^{2.0}
25.9	27.44 ^{.21}	24.5 ^{1.2}	38.98 ^{.21}	61.7 ^{3.5}	60.19 ^{.20}	20.6 ^{2.5}	43.69 ^{.66}	71.7 ^{2.2}	53.26 ^{.35}	47.3 ^{1.6}
Dec. 5.9	27.70 ^{.26}	26.0 ^{1.5}	39.27 ^{.29}	58.4 ^{3.3}	60.42 ^{.23}	18.0 ^{2.6}	44.50 ^{.81}	69.9 ^{1.8}	53.69 ^{.43}	46.2 ^{1.1}
	27.70 ^{.29}	26.0 ^{1.7}	39.27 ^{.34}	58.4 ^{3.0}	60.42 ^{.28}	18.0 ^{2.6}	44.50 ^{.94}	69.9 ^{1.2}	53.69 ^{.48}	46.2 ^{0.7}
15.8	27.99	27.7	39.61	55.4	60.70	15.4	45.44	68.7	54.17	45.5
25.8	28.30 ^{.31}	29.5 ^{1.8}	39.99 ^{.38}	52.7 ^{2.7}	61.00 ^{.30}	13.0 ^{2.4}	46.46 ^{1.02}	68.0 ^{0.7}	54.70 ^{.53}	45.3 ^{0.2}
35.8	28.62 ^{.32}	31.4 ^{1.9}	40.41 ^{.42}	50.5 ^{2.2}	61.32 ^{.32}	10.7 ^{2.3}	47.54 ^{1.08}	67.8 ^{0.2}	55.26 ^{.56}	45.7 ^{0.4}

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

367

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	π Hydræ.		α Draconis.		δ Bootis.		κ Virginis.		γ Ursæ Minoris.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 14 0	° ' " 26 12	h m 14 1	° ' " 64 50	h m 14 5	° ' " 25 33	h m 14 7	° ' " 9 48	h m 14 9	° ' " 78 0
Jan. 0.8	44.58	15.6	41.31	35.6	53.30	25.7	37.34	47.6	9.73	24.3
10.8	44.94 .36	17.1 1.5	41.88 .57	33.7 1.9	53.63 .33	23.5 2.2	37.67 .33	49.4 1.8	10.76 1.03	22.6 1.7
20.8	45.30 .36	18.8 1.7	42.47 .59	32.4 1.3	53.97 .34	21.6 1.9	37.99 .32	51.2 1.8	11.85 1.09	21.5 1.1
30.7	45.05 .35	20.6 1.8	43.06 .59	31.8 0.6	54.30 .33	20.2 1.4	38.32 .30	52.9 1.7	12.96 1.11	21.0 0.5
Feb. 9.7	45.97 .32	22.5 1.9	43.63 .54	31.8 0.7	54.62 .30	19.2 0.5	38.62 .28	54.6 1.5	14.05 1.04	21.3 0.9
19.7	46.28 .27	24.4 1.9	44.17 .48	32.5 1.3	54.92 .26	18.7 0.0	38.90 .26	56.1 1.3	15.09 .93	22.2 1.5
Mar. 1.7	46.55 .24	26.3 1.7	44.65 .41	33.8 1.9	55.18 .23	18.7 0.5	39.16 .22	57.4 1.0	16.02 .80	23.7 2.0
11.6	46.79 .20	28.0 1.7	45.06 .33	35.7 2.3	55.41 .20	19.2 0.9	39.38 .20	58.4 0.9	16.82 .65	25.7 2.5
21.6	46.99 .18	29.7 1.5	45.39 .25	38.0 2.7	55.61 .16	20.1 1.3	39.58 .16	59.3 0.6	17.47 .48	28.2 2.9
31.6	47.17 .13	31.2 1.4	45.64 .16	40.7 3.0	55.77 .12	21.4 1.5	39.74 .13	59.9 0.4	17.95 .29	31.1 3.1
Apr. 10.5	47.30 .11	32.6 1.2	45.80 .07	43.7 3.1	55.89 .08	22.9 1.8	39.87 .10	60.3 0.2	18.24 .10	34.2 3.2
20.5	47.41 .07	33.8 1.1	45.87 .02	46.8 3.1	55.97 .05	24.7 1.9	39.97 .07	60.5 0.1	18.34 .08	37.4 3.2
30.5	47.48 .04	34.9 1.0	45.85 .10	49.9 3.0	56.02 .01	26.6 1.9	40.04 .04	60.6 0.1	18.26 .07	40.6 3.1
May 10.5	47.52 .01	35.7 0.7	45.75 .17	52.9 2.9	56.03 .01	28.6 2.0	40.08 .02	60.5 0.3	17.99 .27	43.7 2.9
20.4	47.53 .02	36.4 0.5	45.58 .24	55.8 2.5	56.02 .05	30.5 1.9	40.10 .01	60.2 0.3	17.57 .58	46.6 2.6
June 30.4	47.51 .04	36.9 0.4	45.34 .30	58.3 2.2	55.97 .06	32.4 1.7	40.09 .04	59.9 0.4	16.99 .70	49.2 2.1
9.4	47.47 .07	37.3 0.1	45.04 .34	60.5 1.8	55.91 .10	34.1 1.6	40.05 .06	59.5 0.5	16.29 .81	51.3 1.8
19.4	47.40 .09	37.4 0.0	44.70 .39	62.3 1.4	55.81 .11	35.7 1.3	39.99 .08	59.0 0.6	15.48 .90	53.1 1.2
29.3	47.31 .11	37.4 0.2	44.31 .42	63.7 0.8	55.70 .13	37.0 1.0	39.91 .09	58.4 0.5	14.58 .95	54.3 0.7
July 9.3	47.20 .13	37.2 0.4	43.89 .43	64.5 0.3	55.57 .14	38.0 0.8	39.82 .11	57.9 0.6	13.63 .99	55.0 0.2
19.3	47.07 .15	36.8 0.6	43.46 .44	64.8 0.2	55.43 .16	38.8 0.5	39.71 .13	57.3 0.7	12.64 1.01	55.2 0.4
29.2	46.92 .15	36.2 0.7	43.02 .44	64.6 0.7	55.27 .16	39.3 0.1	39.58 .13	56.6 0.6	11.63 1.00	54.8 0.8
Aug. 8.2	46.77 .15	35.5 0.9	42.58 .43	63.9 1.3	55.11 .16	39.4 0.2	39.45 .13	56.0 0.6	10.63 .97	54.0 1.4
18.2	46.62 .14	34.6 1.0	42.15 .40	62.6 1.7	54.95 .15	39.2 0.5	39.31 .14	55.4 0.5	9.66 .92	52.6 1.9
28.2	46.48 .13	33.6 1.0	41.75 .37	60.9 2.1	54.80 .15	38.7 0.9	39.18 .12	54.9 0.6	8.74 .84	50.7 2.4
Sept. 7.1	46.35 .11	32.6 1.1	41.38 .32	58.8 2.6	54.65 .12	37.8 1.2	39.06 .10	54.3 0.4	7.90 .75	48.3 2.7
17.1	46.24 .07	31.5 1.1	41.06 .27	56.2 3.0	54.53 .09	36.6 1.5	38.96 .07	53.9 0.2	7.15 .63	45.6 3.1
27.1	46.17 .04	30.4 1.0	40.79 .19	53.2 3.2	54.44 .06	35.1 1.8	38.89 .04	53.7 0.1	6.52 .50	42.5 3.4
Oct. 7.1	46.13 .01	29.4 0.9	40.60 .12	50.0 3.5	54.38 .02	33.3 2.1	38.85 .00	53.6 0.0	6.02 .34	39.1 3.6
17.0	46.14 .06	28.5 0.7	40.48 .03	46.5 3.7	54.36 .03	31.2 2.3	38.85 .04	53.6 0.3	5.68 .18	35.5 3.8
Nov. 27.0	46.20 .11	27.8 0.4	40.45 .06	42.8 3.8	54.39 .08	28.9 2.6	38.89 .10	53.9 0.6	5.50 .01	31.7 3.8
6.0	46.31 .17	27.4 0.1	40.51 .16	39.0 3.7	54.47 .13	26.3 3.7	38.99 .14	54.5 0.8	5.51 .19	27.9 3.8
15.9	46.48 .22	27.3 0.1	40.67 .25	35.3 3.7	54.60 .18	23.6 2.8	39.13 .19	55.3 1.0	5.70 .37	24.1 3.6
25.9	46.70 .26	27.4 0.5	40.92 .34	31.6 3.4	54.78 .22	20.8 2.8	39.32 .23	56.3 1.3	6.07 .55	20.5 3.5
Dec. 5.9	46.96 .30	27.9 0.8	41.26 .43	28.2 3.2	55.00 .27	18.0 2.8	39.55 .27	57.6 1.5	6.62 .72	17.0 3.0
15.9	47.26 .33	28.7 1.1	41.69 .49	25.0 2.7	55.27 .30	15.2 2.6	39.82 .30	59.1 1.7	7.34 .86	14.0 2.7
25.8	47.59 .35	29.8 1.3	42.18 .54	22.3 2.3	55.57 .32	12.6 2.4	40.12 .32	60.8 1.8	8.20 .98	11.3 2.1
35.8	47.94	31.1	42.72	20.0	55.89	10.2	40.44	62.6	9.18	9.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Octantis.		α Bootis. (<i>Arcturus</i> .)		λ Bootis.		λ Virginis.		θ Bootis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 14 11	° -83 12	h m 14 11	° +19 41	h m 14 12	° +46 32	h m 14 13	° -12 54	h m 14 21	° +52 17
	s	"	s	"	s	"	s	"	s	"
Jan. 0.8	1.60	36.0	8.94	41.6	36.90	17.1	45.58	55.4	48.95	72.2
	2.11	0.2	32	2.3	39	2.2	33	1.7	42	2.3
10.8	3.71	35.8	9.26	39.3	37.29	14.9	45.91	57.1	49.37	69.9
	2.15	0.5	33	1.9	40	1.7	33	1.7	43	1.7
20.8	5.86	36.3	9.59	37.4	37.69	13.2	46.24	58.8	49.80	68.2
	2.13	1.0	32	1.6	40	1.1	33	1.8	44	1.1
30.7	7.99	37.3	9.91	35.8	38.09	12.1	46.57	60.6	50.24	67.1
	2.05	1.5	31	1.2	39	0.5	31	1.7	43	0.5
Feb. 9.7	10.04	38.8	10.22	34.6	38.48	11.6	46.88	62.3	50.67	66.6
	1.94	2.1	29	0.7	37	0.1	29	1.5	41	0.1
19.7	11.98	40.9	10.51	33.9	38.85	11.7	47.17	63.8	51.08	66.7
	1.77	2.4	26	0.3	33	0.7	26	1.4	37	0.8
Mar. 1.7	13.75	43.3	10.77	33.6	39.18	12.4	47.43	65.2	51.45	67.5
	1.58	2.8	22	0.2	29	1.2	23	1.2	32	1.3
11.6	15.33	46.1	10.99	33.8	39.47	13.6	47.66	66.4	51.77	68.8
	1.36	3.1	20	0.5	24	1.7	20	1.0	28	1.8
21.6	16.69	49.2	11.19	34.3	39.71	15.3	47.86	67.4	52.05	70.6
	1.12	3.3	15	0.9	19	2.2	17	0.7	22	2.3
31.6	17.81	52.5	11.34	35.2	39.90	17.5	48.03	68.1	52.27	72.9
	0.86	3.5	13	1.2	14	2.4	14	0.6	16	2.6
Apr. 10.5	18.67	56.0	11.47	36.4	40.04	19.9	48.17	68.7	52.43	75.5
	0.59	3.5	09	1.4	08	2.7	11	0.4	10	2.8
20.5	19.26	59.5	11.56	37.8	40.12	22.6	48.28	69.1	52.53	78.3
	0.31	3.5	05	1.6	04	2.7	08	0.2	04	2.9
30.5	19.57	63.0	11.61	39.4	40.16	25.3	48.36	69.3	52.57	81.2
	0.24	3.4	02	1.7	01	2.8	05	0.1	01	2.9
May 10.5	19.61	66.4	11.63	41.1	40.15	28.1	48.41	69.4	52.56	84.1
	0.04	3.2	00	1.7	05	2.6	02	0.1	06	2.9
20.4	19.37	69.6	11.63	42.8	40.10	30.7	48.43	69.3	52.50	87.0
	0.51	3.0	03	1.6	09	2.5	01	0.1	11	2.6
30.4	18.86	72.6	11.60	44.4	40.01	33.2	48.42	69.2	52.39	89.6
	0.76	2.7	06	1.5	13	2.2	03	0.3	15	2.3
June 9.4	18.10	75.3	11.54	45.9	39.88	35.4	48.39	68.9	52.24	91.9
	0.99	2.4	08	1.4	17	1.9	05	0.4	19	2.0
19.4	17.11	77.7	11.46	47.3	39.71	37.3	48.34	68.5	52.05	93.9
	1.20	1.9	18	1.2	18	1.6	08	0.5	22	1.7
29.3	15.91	79.6	11.36	48.5	39.53	38.9	48.26	68.1	51.83	95.6
	1.37	1.4	12	1.0	21	1.1	09	0.4	25	1.2
July 9.3	14.54	81.0	11.24	49.5	39.32	40.0	48.17	67.6	51.58	96.8
	1.50	0.9	14	0.8	23	0.7	11	0.6	27	0.7
19.3	13.04	81.9	11.10	50.3	39.09	40.7	48.06	67.0	51.31	97.5
	1.59	0.4	14	0.5	24	0.3	13	0.6	28	0.3
29.3	11.45	82.3	10.96	50.8	38.85	41.0	47.93	66.4	51.03	97.8
	1.62	0.2	15	0.2	25	0.2	14	0.6	29	0.3
Aug. 8.2	9.83	82.1	10.18	51.0	38.60	40.8	47.79	65.8	50.74	97.5
	1.60	0.8	16	0.1	24	0.7	14	0.7	29	0.7
18.2	8.23	81.3	10.65	50.9	38.36	40.1	47.65	65.1	50.45	96.8
	1.51	1.3	15	0.4	23	1.1	13	0.6	28	1.2
28.2	6.72	80.0	10.50	50.5	38.13	39.0	47.52	64.5	50.17	95.6
	1.36	1.8	14	0.6	21	1.5	13	0.6	26	1.6
Sept. 7.1	5.36	78.2	10.36	49.9	37.92	37.5	47.39	63.9	49.91	94.0
	1.17	2.3	11	1.0	19	2.0	11	0.5	23	2.1
17.1	4.19	75.9	10.25	48.9	37.73	35.5	47.28	63.4	49.68	91.9
	0.91	2.7	10	1.2	16	2.3	07	0.4	20	2.4
27.1	3.28	73.2	10.15	47.7	37.57	33.2	47.21	63.0	49.48	89.5
	0.61	2.9	06	1.6	11	2.7	05	0.3	15	2.8
Oct. 7.1	2.67	70.3	10.09	46.1	37.46	30.5	47.16	62.7	49.33	86.7
	0.27	3.0	02	1.8	06	2.9	00	0.1	09	3.1
17.0	2.40	67.3	10.07	44.3	37.40	27.6	47.16	62.6	49.24	83.6
	0.08	3.2	03	2.1	01	3.2	04	0.1	03	3.4
27.0	2.48	64.1	10.10	42.2	37.39	24.4	47.20	62.7	49.21	80.2
	0.44	3.0	07	2.3	06	3.4	09	0.3	03	3.5
Nov. 6.0	2.92	61.1	10.17	39.9	37.45	21.0	47.29	63.0	49.24	76.7
	0.81	2.9	12	2.5	12	3.4	13	0.6	11	3.6
16.0	3.73	58.2	10.29	37.4	37.57	17.6	47.42	63.6	49.35	73.1
	1.14	2.5	17	2.6	19	3.5	19	0.9	17	3.6
25.9	4.87	55.7	10.46	34.8	37.76	14.1	47.61	64.5	49.52	69.5
	1.44	2.2	22	2.7	24	3.4	24	1.1	24	3.5
Dec. 5.9	6.31	53.5	10.68	32.1	38.00	10.7	47.85	65.6	49.76	66.0
	1.70	1.6	26	2.7	30	3.1	27	1.4	31	3.3
15.9	8.01	51.9	10.94	29.4	38.30	7.6	48.12	67.0	50.07	62.7
	1.90	1.2	29	2.6	34	2.9	29	1.5	36	3.0
25.8	9.91	50.7	11.23	26.8	38.64	4.7	48.41	68.5	50.43	59.7
	2.04	0.5	31	2.4	37	2.5	32	1.6	39	2.6
35.8	11.95	50.2	11.54	24.4	39.01	2.2	48.73	70.1	50.82	57.1

FIXED STARS, 1901.

369

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ρ Bootis.		5 Ursæ Minoris.		α^2 Centauri.		33 Bootis.		α Apodis.	
	Right Ascension.	Declina- tion North.	Right Ascension	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 14 27	° ' " +30 47	h m 14 27	° ' " +76 7	h m 14 32	° ' " -60 25	h m 14 35	° ' " +44 49	h m 14 35	° ' " -78 37
Jan. 0.8	33.74	68.7	39.93	50.3	52.81	23.6	8.72	38.7	32.87	12.8
10.8	34.07	66.3	40.80	48.3	53.37	23.8	9.09	36.3	34.15	12.4
20.8	34.42	64.4	41.74	46.9	53.94	24.4	9.47	34.4	35.48	12.5
30.8	34.76	62.9	42.71	46.2	54.51	25.5	9.86	33.0	36.82	13.2
Feb 9.7	35.10	61.9	43.68	46.2	55.06	27.0	10.25	32.2	38.13	14.5
19.7	35.41	61.5	44.60	46.8	55.58	28.9	10.61	32.1	39.38	16.2
Mar. 1.7	35.70	61.5	45.46	48.0	56.07	31.0	10.95	32.5	40.55	18.3
11.6	35.95	62.1	46.21	49.9	56.50	33.4	11.25	33.5	41.61	20.8
21.6	36.17	63.2	46.83	52.2	56.89	35.9	11.51	35.0	42.56	23.6
31.6	36.36	64.6	47.32	55.0	57.22	38.6	11.73	37.0	43.36	26.7
Apr. 10.6	36.50	66.4	47.65	58.0	57.50	41.4	11.89	39.3	44.02	29.9
20.5	36.61	68.4	47.82	61.2	57.71	44.1	12.01	41.9	44.52	33.2
30.5	36.68	70.6	47.82	64.4	57.86	46.8	12.08	44.6	44.87	36.5
May 10.5	36.71	72.9	47.67	67.6	57.95	49.4	12.10	47.4	45.04	39.8
20.5	36.70	75.2	47.38	70.6	57.98	51.9	12.08	50.1	45.06	42.9
30.4	36.67	77.3	46.95	73.3	57.95	54.2	12.02	52.7	44.91	45.9
June 9.4	36.61	79.4	46.40	75.7	57.86	56.2	11.92	55.1	44.59	48.6
19.4	36.51	81.2	45.75	77.7	57.71	57.9	11.78	57.2	44.13	51.0
29.3	36.40	82.7	45.02	79.2	57.51	59.2	11.62	59.0	43.53	53.0
July 9.3	36.26	84.0	44.22	80.2	57.26	60.2	11.43	60.3	42.81	54.6
19.3	36.10	84.9	43.37	80.7	56.97	60.8	11.21	61.3	41.99	55.7
29.3	35.93	85.5	42.50	80.7	56.64	60.9	10.98	61.8	41.10	56.3
Aug. 8.2	35.75	85.7	41.62	80.1	56.30	60.6	10.74	61.9	40.16	56.3
18.2	35.57	85.5	40.76	78.9	55.95	59.9	10.50	61.5	39.22	55.8
28.2	35.39	85.0	39.93	77.3	55.61	58.7	10.26	60.7	38.30	54.7
Sept. 7.2	35.22	84.1	39.16	75.2	55.29	57.2	10.03	59.4	37.44	53.1
17.1	35.07	82.8	38.45	72.7	55.01	55.3	9.83	57.7	36.69	51.1
27.1	34.95	81.2	37.85	69.8	54.78	53.1	9.65	55.6	36.07	48.7
Oct. 7.1	34.86	79.2	37.35	66.6	54.61	50.8	9.52	53.1	35.62	46.0
17.0	34.81	77.0	36.98	63.1	54.53	48.3	9.43	50.3	35.36	43.1
27.0	34.81	74.5	36.75	59.4	54.54	45.9	9.39	47.2	35.32	40.1
Nov. 6.0	34.86	71.7	36.69	55.6	54.64	43.5	9.42	44.0	35.50	37.1
16.0	34.96	68.8	36.78	51.8	54.83	41.3	9.51	40.6	35.90	34.2
25.9	35.11	65.8	37.04	48.1	55.11	39.4	9.66	37.1	36.52	31.6
Dec. 5.9	35.32	62.8	37.46	44.6	55.48	37.9	9.87	33.7	37.33	29.4
15.9	35.57	59.8	38.03	41.4	55.92	36.8	10.13	30.4	38.32	27.6
25.9	35.86	57.0	38.74	38.5	56.41	36.2	10.44	27.4	39.44	26.3
35.8	36.18	54.5	39.56	36.1	56.95	36.0	10.80	24.7	40.67	25.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ϵ Bootis.		α^2 Libræ.		β Ursæ Minoris		β Bootis.		γ Scorpii.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 14 40	° ' " +27 29	h m 14 45	° ' " -15 37	h m 14 50	° ' " +74 33	h m 14 58	° ' " +40 46	h m 14 58	° ' " -24 53
	s	"	s	"	s	"	s	"	s	"
Jan 0.8	39.71	18.3	24.36	47.7	55.67	18.4	12.49	38.4	16.80	29.5
10.8	40.03 .32	16.0 2.3	24.68 .32	49.2 1.5	56.42 .75	16.1 2.3	12.83 .34	35.9 2.5	17.14 .34	30.6 1.1
20.8	40.36 .33	13.9 2.1	25.02 .34	50.7 1.5	57.24 .82	14.4 1.7	13.19 .36	33.7 2.2	17.48 .34	31.9 1.3
30.8	40.70 .34	12.3 1.6	25.35 .33	52.3 1.6	58.11 .87	13.3 1.1	13.55 .36	32.1 1.6	17.83 .35	33.3 1.4
Feb. 9.7	41.03 .33	11.2 1.1	25.67 .32	53.8 1.5	58.99 .88	12.9 0.4	13.92 .37	31.1 1.0	18.17 .34	34.8 1.5
	41.03 .31	11.2 0.6	25.67 .30	53.8 1.5	58.99 .86	12.9 0.3	13.92 .36	31.1 0.5	18.17 .33	34.8 1.5
19.7	41.34 .29	10.6 0.1	25.97 .29	55.3 1.3	59.85 .80	13.2 0.9	14.28 .33	30.6 0.1	18.50 .31	36.3 1.4
Mar. 1.7	41.63 .26	10.5 0.4	26.26 .25	56.6 1.2	60.65 .73	14.1 1.6	14.61 .30	30.7 0.8	18.81 .28	37.7 1.4
11.7	41.89 .22	10.9 0.8	26.51 .23	57.8 1.0	61.38 .63	15.7 2.1	14.91 .27	31.5 1.2	19.09 .25	39.1 1.3
21.6	42.11 .20	11.7 1.3	26.74 .20	58.8 0.8	62.01 .51	17.8 2.6	15.18 .23	32.7 1.7	19.34 .23	40.4 1.2
31.6	42.31 .15	13.0 1.6	26.94 .18	59.6 0.7	62.52 .38	20.4 2.9	15.41 .19	34.4 2.2	19.57 .19	41.6 1.0
Apr. 10.6	42.46 .12	14.6 1.9	27.12 .14	60.3 0.4	62.90 .24	23.3 3.1	15.60 .14	36.6 2.4	19.76 .16	42.6 1.0
20.5	42.58 .09	16.5 2.0	27.26 .11	60.7 0.3	63.14 .09	26.4 3.2	15.74 .10	39.0 2.6	19.92 .14	43.6 0.8
30.5	42.67 .05	18.5 2.2	27.37 .08	61.0 0.2	63.23 .05	29.6 3.3	15.84 .06	41.6 2.7	20.06 .10	44.4 0.7
May 10.5	42.72 .01	20.7 2.2	27.45 .05	61.2 0.0	63.18 .18	32.9 3.1	15.90 .01	44.3 2.7	20.16 .07	45.1 0.6
20.5	42.73 .01	22.9 2.1	27.50 .03	61.2 0.0	63.00 .31	36.0 2.9	15.91 .02	47.0 2.6	20.23 .04	45.7 0.4
30.4	42.72 .05	25.0 2.0	27.53 .01	61.2 0.2	62.69 .42	38.9 2.6	15.89 .06	49.6 2.5	20.27 .01	46.1 0.3
June 9.4	42.67 .08	27.0 1.8	27.52 .03	61.0 0.2	62.27 .53	41.5 2.3	15.83 .10	52.1 2.2	20.28 .03	46.4 0.2
19.4	42.59 .10	28.8 1.6	27.49 .06	60.8 0.3	61.74 .62	43.8 1.8	15.73 .14	54.3 1.9	20.25 .05	46.6 0.1
29.4	42.49 .12	30.4 1.4	27.43 .08	60.5 0.4	61.12 .68	45.6 1.4	15.59 .16	56.2 1.6	20.20 .08	46.7 0.0
July 9.3	42.37 .15	31.8 1.0	27.35 .11	60.1 0.4	60.44 .75	47.0 0.8	15.43 .18	57.8 1.2	20.12 .11	46.7 0.2
19.3	42.22 .16	32.8 0.7	27.24 .12	59.7 0.5	59.69 .77	47.8 0.3	15.25 .21	59.0 0.8	20.01 .13	46.5 0.3
29.3	42.06 .17	33.5 0.3	27.12 .14	59.2 0.6	58.92 .80	48.1 0.2	15.04 .22	59.8 0.4	19.88 .15	46.2 0.5
Aug 8.2	41.89 .18	33.8 0.0	26.98 .15	58.6 0.6	58.12 .80	47.9 0.7	14.82 .24	60.2 0.1	19.73 .17	45.7 0.6
18.2	41.71 .17	33.8 0.3	26.83 .15	58.0 0.6	57.32 .78	47.2 1.3	14.58 .23	60.1 0.5	19.56 .16	45.1 0.7
28.2	41.54 .17	33.5 0.7	26.68 .15	57.4 0.6	56.54 .75	45.9 1.8	14.35 .22	59.6 0.9	19.40 .16	44.4 0.7
Sept 7.2	41.37 .16	32.8 1.1	26.53 .13	56.8 0.5	55.79 .69	44.1 2.2	14.13 .21	58.7 1.4	19.24 .15	43.7 0.8
17.1	41.21 .13	31.7 1.4	26.40 .10	56.3 0.5	55.10 .61	41.9 2.6	13.92 .18	57.3 1.8	19.09 .12	42.9 0.9
27.1	41.08 .10	30.3 1.8	26.30 .08	55.8 0.4	54.49 .53	39.3 3.0	13.74 .15	55.5 2.1	18.97 .09	42.0 0.8
Oct. 7.1	40.98 .06	28.5 2.0	26.22 .03	55.4 0.3	53.96 .41	36.3 3.3	13.59 .11	53.4 2.6	18.88 .05	41.2 0.8
17.1	40.92 .01	26.5 2.3	26.19 .01	55.1 0.1	53.55 .28	33.0 3.6	13.48 .06	50.8 2.8	18.83 .00	40.4 0.6
27.0	40.91 .04	24.2 2.6	26.20 .06	55.0 0.1	53.27 .15	29.4 3.7	13.42 .00	48.0 3.0	18.83 .05	39.8 0.5
Nov. 6.0	40.95 .09	21.6 2.8	26.26 .11	55.1 0.3	53.12 .00	25.7 3.8	13.42 .06	45.0 3.3	18.88 .10	39.3 0.3
16.0	41.04 .14	18.8 2.9	26.37 .16	55.4 0.6	53.12 .15	21.9 3.7	13.48 .12	41.7 3.4	18.98 .16	39.0 0.0
25.9	41.18 .19	15.9 2.9	26.53 .21	56.0 0.9	53.27 .31	18.2 3.7	13.60 .17	38.4 3.3	19.14 .21	39.0 0.2
Dec. 5.9	41.37 .24	13.0 2.9	26.74 .25	56.9 1.0	53.58 .45	14.5 3.4	13.77 .24	35.0 3.2	19.35 .26	39.2 0.5
15.9	41.61 .28	10.1 2.8	26.99 .28	57.9 1.3	54.03 .58	11.1 3.0	14.07 .28	31.8 3.1	19.61 .29	39.7 0.8
25.9	41.89 .30	7.3 2.5	27.27 .31	59.2 1.4	54.61 .70	8.1 2.7	14.29 .32	28.7 2.8	19.90 .32	40.5 1.0
35.8	42.19	4.8	27.58	60.6	55.31	5.4	14.61	25.9	20.22	41.5

FIXED STARS, 1901.

371

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Bootis.		β Libræ.		ρ Octantis.		μ^1 Bootis.		γ^2 Ursæ Minoris	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 15 11	° ' " +33 40	h m 15 11	° ' " - 9 1	h m 15 20	° ' " -84 7	h m 15 20	° ' " +37 43	h m 15 20	° ' " +72 10
Jan. 0.9	30.29	51.9	40.90	3.1	22.12	52.6	44.46	16.5	49.38	55.3
10.8	30.60	49.3	41.20	4.7	24.38	51.4	44.77	13.8	49.98	52.6
20.8	30.93	47.1	41.51	6.3	26.80	50.7	45.11	11.5	50.67	50.5
30.8	31.27	45.3	41.83	7.9	29.32	50.6	45.46	9.7	51.41	49.0
Feb. 9.8	31.62	44.1	42.15	9.3	31.86	51.0	45.81	8.5	52.18	48.2
19.7	31.95	43.4	42.45	10.6	34.37	52.0	46.16	7.8	52.94	48.1
Mar. 1.7	32.27	43.2	42.74	11.6	36.80	53.4	46.49	7.7	53.68	48.6
11.7	32.56	43.7	43.01	12.5	39.08	55.3	46.80	8.2	54.37	49.8
21.6	32.82	44.6	43.25	13.1	41.18	57.6	47.08	9.2	54.98	51.6
31.6	33.05	46.0	43.47	13.6	43.06	60.2	47.32	10.7	55.51	53.9
Apr. 10.6	33.24	47.8	43.65	13.8	44.69	63.0	47.52	12.6	55.92	56.6
20.6	33.39	49.9	43.81	13.8	46.04	66.1	47.69	14.9	56.22	59.6
30.5	33.51	52.3	43.95	13.6	47.09	69.3	47.82	17.4	56.41	62.8
May 10.5	33.59	54.8	44.05	13.3	47.81	72.6	47.90	20.0	56.47	66.1
20.5	33.63	57.3	44.13	12.9	48.20	75.9	47.95	22.7	56.41	69.3
30.5	33.63	59.8	44.17	12.4	48.25	79.1	47.95	25.4	56.23	72.4
June 9.4	33.60	62.1	44.19	11.9	47.96	82.1	47.92	27.9	55.94	75.3
19.4	33.53	64.3	44.17	11.4	47.34	84.9	47.85	30.2	55.56	77.9
29.4	33.44	66.2	44.13	10.8	46.42	87.4	47.75	32.3	55.09	80.1
July 9.3	33.31	67.8	44.06	10.2	45.21	89.6	47.61	34.1	54.54	81.9
19.3	33.15	69.1	43.97	9.6	43.75	91.3	47.44	35.5	53.93	83.2
29.3	32.98	70.1	43.85	9.1	42.08	92.5	47.25	36.5	53.27	84.0
Aug. 8.3	32.78	70.7	43.71	8.5	40.27	93.2	47.04	37.2	52.58	84.2
18.2	32.58	70.8	43.57	8.0	38.38	93.4	46.82	37.4	51.88	84.0
28.2	32.37	70.6	43.41	7.6	36.46	92.9	46.59	37.2	51.17	83.2
Sept. 7.2	32.17	69.9	43.26	7.2	34.60	91.9	46.37	36.5	50.48	81.9
17.2	31.97	68.9	43.12	6.9	32.88	90.4	46.16	35.4	49.83	80.1
27.1	31.80	67.4	43.00	6.7	31.36	88.4	45.96	33.9	49.23	77.8
Oct. 7.1	31.66	65.6	42.90	6.6	30.11	85.9	45.80	32.0	48.70	75.2
17.1	31.56	63.5	42.84	6.7	29.19	83.2	45.67	29.8	48.26	72.1
27.0	31.50	61.0	42.82	6.9	28.65	80.2	45.60	27.2	47.93	68.8
Nov. 6.0	31.49	58.2	42.85	7.4	28.52	77.0	45.57	24.3	47.71	65.2
16.0	31.54	55.3	42.93	8.1	28.82	73.9	45.60	21.3	47.62	61.5
26.0	31.65	52.2	43.06	9.0	29.55	70.9	45.69	18.1	47.67	57.7
Dec. 5.9	31.81	49.0	43.24	10.1	30.68	68.1	45.84	14.8	47.85	54.0
15.9	32.02	45.9	43.46	11.4	32.19	65.6	46.04	11.5	48.16	50.4
25.9	32.27	42.9	43.72	12.9	34.03	63.6	46.29	8.4	48.60	47.1
35.9	32.57	40.1	44.01	14.4	36.13	62.0	46.59	5.5	49.15	44.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Coronæ Borealis.			α Coronæ Borealis.			α Serpentis.			ϵ Serpentis.			ζ Ursæ Minoris		
	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.
	h m	s	° ' "	h m	s	° ' "	h m	s	° ' "	h m	s	° ' "	h m	s	° ' "
	15 23		+29 26	15 30		+27 2	15 39		+ 6 44	15 45		+ 4 46	15 47		+78 5
Jan. 0.9	44.47		30.8	29.40		43.9	23.38		10.4	52.73		30.6	28.72		44.0
10.9	44.76	.29	37.2	29.69	.29	41.3	23.66	.28	8.4	53.01	.28	28.7	29.48	.76	41.2
20.8	45.08	.32	35.0	30.01	.32	39.1	23.95	.29	6.5	53.30	.29	26.8	30.38	.90	38.9
30.8	45.41	.33	33.2	30.33	.32	37.2	24.26	.31	4.8	53.60	.30	25.2	31.38	1.00	37.2
Feb. 9.8	45.74	.33	31.8	30.65	.32	35.8	24.57	.31	3.4	53.91	.31	23.8	32.45	1.07	36.1
		.33			.32			.30			.30			1.10	
Mar. 19.7	46.07		30.9	30.97		34.9	24.87		2.3	54.21		22.6	33.55		35.7
1.7	46.38	.31	30.6	31.28	.31	34.5	25.16	.29	1.5	54.50	.29	21.8	34.64	1.09	35.9
11.7	46.66	.28	30.9	31.57	.29	34.6	25.43	.27	1.1	54.78	.28	21.4	35.67	1.03	36.9
21.7	46.92	.26	31.6	31.83	.26	35.3	25.68	.25	1.1	55.03	.25	21.3	36.62	.95	38.4
31.6	47.15	.20	32.8	32.07	.24	36.4	25.91	.23	1.4	55.27	.24	21.5	37.45	.83	40.5
		.20			.20			.21			.21			.69	
Apr. 10.6	47.35		34.4	32.27		37.9	26.12		2.0	55.48		22.0	38.14		43.0
20.6	47.52	.17	36.4	32.44	.17	39.7	26.29	.17	2.9	55.66	.18	22.8	38.66	.52	45.9
30.6	47.65	.13	38.6	32.57	.13	41.7	26.44	.15	4.0	55.81	.15	23.8	39.01	.35	49.0
May 10.5	47.74	.09	40.9	32.68	.11	44.0	26.56	.12	5.3	55.94	.13	25.0	39.17	.16	52.3
20.5	47.80	.06	43.3	32.74	.06	46.3	26.65	.09	6.6	56.04	.10	26.3	39.16	.01	55.6
		.02			.04			.06			.07			.20	
June 30.5	47.82		45.7	32.78		48.6	26.71		8.0	56.11		27.6	38.96		58.8
9.4	47.81	.01	48.0	32.77	.01	50.9	26.74	.03	9.4	56.15	.04	28.9	38.58	.38	61.8
19.4	47.76	.05	50.1	32.74	.03	53.0	26.74	.00	10.8	56.15	.00	30.2	38.05	.53	64.6
29.4	47.68	.08	52.1	32.67	.07	54.9	26.71	.03	12.1	56.13	.02	31.5	37.38	.67	67.0
July 9.4	47.57	.11	53.7	32.57	.10	56.5	26.65	.06	13.3	56.07	.06	32.6	36.57	.81	69.0
		.13			.12			.09			.09			.91	
Aug. 19.3	47.44	.16	55.1	32.45	.16	57.9	26.56	.12	14.3	55.98	.11	33.6	35.66		70.6
29.3	47.28	.19	56.2	32.29	.17	59.0	26.44	.13	15.2	55.87	.13	34.5	34.67	.99	71.7
8.3	47.09	.19	56.9	32.12	.18	60.2	26.31	.15	15.9	55.74	.15	35.2	33.61	1.06	72.3
18.3	46.90	.19	57.2	31.94	.20	60.2	26.16	.17	16.4	55.59	.16	35.7	32.51	1.10	72.3
28.2	46.70	.20	57.1	31.74	.19	60.2	25.99	.16	16.7	55.43	.17	36.0	31.40	1.11	71.9
		.19			.19			.16			.17			1.10	
Sept. 7.2	46.51		56.7	31.55		59.8	25.83		16.8	55.26		36.2	30.30		70.9
17.2	46.32	.19	55.9	31.36	.19	59.1	25.67	.16	16.7	55.10	.16	36.2	29.24	1.06	69.4
27.1	46.15	.17	54.7	31.20	.16	58.0	25.53	.14	16.3	54.96	.14	35.9	28.24	1.00	67.4
Oct. 7.1	46.00	.15	53.1	31.05	.15	56.6	25.41	.12	15.7	54.83	.13	35.4	27.33	.91	65.0
17.1	45.90	.10	51.2	30.94	.11	54.8	25.32	.09	14.9	54.74	.09	34.7	26.54	.79	62.3
		.07			.06			.06			.05			.65	
Nov. 27.1	45.83		48.9	30.88		52.7	25.26		13.8	54.68		33.7	25.89		59.1
6.0	45.82	.01	46.4	30.86	.02	50.3	25.26	.00	12.5	54.67	.01	32.5	25.41	.48	55.8
16.0	45.86	.04	43.7	30.89	.03	47.7	25.30	.04	10.9	54.71	.04	31.1	25.10	.31	52.2
26.0	45.95	.09	40.8	30.98	.09	44.9	25.39	.09	9.2	54.80	.09	29.4	24.99	.11	48.5
Dec. 6.0	46.09	.14	37.8	31.12	.14	42.0	25.53	.14	7.3	54.93	.13	27.6	25.07	.08	44.8
		.20			.19			.19			.19			.29	
15.9	46.29		34.7	31.31		39.1	25.72		5.2	55.12		25.7	25.36		41.2
25.9	46.53	.24	31.8	31.54	.23	36.2	25.95	.23	3.1	55.34	.22	23.7	25.85	.49	37.8
35.9	46.81	.28	29.1	31.81	.27	33.5	26.21	.26	1.0	55.59	.25	21.7	26.51	.66	34.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ϵ Coronæ Borealis.		δ Scorpii.		β^1 Scorpii.		δ^1 Apodis.		ϕ Herculis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 15 53	° ' " +27 9	h m 15 54	° ' " -22 20	h m 15 59	° ' " -19 32	h m 16 5	° ' " -78 26	h m 16 5	° ' " +45 11
Jan. 0.9	28.83	45.4	28.74	19.4	40.75	0.1	30.60	33.8	37.94	31.2
10.9	29.10	42.8	29.04	20.2	41.04	1.0	31.69	32.1	38.23	28.2
20.8	29.40	40.4	29.36	21.1	41.35	2.0	32.89	30.9	38.56	25.6
30.8	29.71	38.4	29.69	22.1	41.68	3.1	34.17	30.2	38.92	23.4
Feb. 9.8	30.04	36.9	30.02	23.2	42.01	4.2	35.50	30.0	39.29	21.8
19.8	30.36	35.9	30.35	24.3	42.33	5.2	36.85	30.3	39.66	20.8
Mar. 1.7	30.67	35.4	30.67	25.3	42.65	6.2	38.18	31.0	40.03	20.4
11.7	30.96	35.4	30.98	26.2	42.95	7.0	39.47	32.2	40.39	20.7
21.7	31.24	35.9	31.26	27.1	43.23	7.8	40.69	33.9	40.72	21.6
31.6	31.49	36.9	31.53	27.8	43.49	8.4	41.83	35.8	41.03	23.0
Apr. 10.6	31.71	38.4	31.77	28.5	43.73	8.9	42.86	38.1	41.30	25.0
20.6	31.90	40.2	31.98	29.0	43.95	9.3	43.76	40.7	41.52	27.3
30.6	32.06	42.2	32.17	29.4	44.14	9.5	44.53	43.4	41.71	30.0
May 10.5	32.18	44.5	32.33	29.8	44.30	9.7	45.15	46.3	41.85	32.8
20.5	32.27	46.9	32.46	30.1	44.43	9.8	45.60	49.3	41.94	35.8
30.5	32.33	49.3	32.55	30.3	44.53	9.9	45.88	52.3	41.99	38.9
June 9.5	32.35	51.6	32.61	30.5	44.59	9.9	45.99	55.2	41.99	41.8
19.4	32.33	53.8	32.64	30.6	44.62	9.8	45.92	58.0	41.94	44.6
29.4	32.28	55.9	32.63	30.6	44.62	9.7	45.68	60.6	41.85	47.2
July 9.4	32.20	57.7	32.59	30.6	44.58	9.5	45.26	62.9	41.71	49.4
19.3	32.08	59.3	32.51	30.5	44.51	9.3	44.70	64.9	41.53	51.3
29.3	31.94	60.6	32.40	30.3	44.40	9.1	43.99	66.5	41.32	52.9
Aug. 8.3	31.77	61.5	32.27	30.0	44.27	8.8	43.18	67.6	41.08	54.0
18.3	31.58	62.1	32.11	29.7	44.12	8.4	42.28	68.2	40.82	54.6
28.2	31.38	62.3	31.94	29.3	43.95	8.0	41.33	68.3	40.54	54.8
Sept. 7.2	31.18	62.1	31.76	28.8	43.78	7.6	40.36	67.9	40.26	54.4
17.2	30.98	61.5	31.59	28.3	43.61	7.1	39.42	66.9	39.99	53.7
27.2	30.80	60.6	31.44	27.7	43.45	6.6	38.55	65.4	39.73	52.4
Oct. 7.1	30.64	59.3	31.31	27.1	43.32	6.2	37.79	63.5	39.49	50.7
17.1	30.51	57.7	31.21	26.6	43.22	5.8	37.17	61.1	39.29	48.6
27.1	30.42	55.7	31.15	26.1	43.16	5.5	36.73	58.4	39.13	46.1
Nov. 6.0	30.37	53.4	31.14	25.7	43.14	5.3	36.49	55.6	39.03	43.2
16.0	30.38	50.9	31.18	25.5	43.18	5.3	36.46	52.6	38.98	40.1
26.0	30.44	48.1	31.28	25.5	43.27	5.4	36.66	49.6	39.00	36.8
Dec. 6.0	30.55	45.2	31.44	25.6	43.41	5.7	37.08	46.7	39.09	33.3
15.9	30.72	42.3	31.63	26.0	43.61	6.2	37.72	44.1	39.24	29.9
25.9	30.93	39.4	31.88	26.5	43.84	6.8	38.54	41.8	39.45	26.5
35.9	31.18	36.6	32.16	27.3	44.11	7.7	39.53	39.9	39.71	23.3

FIXED STARS, 1901.
(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	Groombridge 2320.		δ Ophiuchi.		σ Coronæ Borealis.		τ Herculis.		γ Apodis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 16 5	° ' " +68 3	h m 16 9	° ' " - 3 26	h m 16 10	° ' " +34 6	h m 16 16	° ' " +46 32	h m 16 18	° ' " -78 40
Jan. 0.9	59.85	64.4	9.31	21.4	57.55	27.6	44.71	48.6	13.19	16.7
10.9	60.28 .43	61.3 3.1	9.57 .26	23.0 1.6	57.81 .26	24.8 2.8	44.99 .28	45.5 3.1	14.26 1.07	14.9 1.8
20.9	60.79 .51	58.7 2.6	9.86 .29	24.5 1.5	58.11 .30	22.3 2.5	45.31 .32	42.8 2.7	15.45 1.19	13.5 1.4
30.8	61.37 .58	56.7 2.0	10.15 .29	26.0 1.5	58.42 .31	20.2 2.1	45.66 .35	40.6 2.2	16.74 1.29	12.6 0.9
Feb. 9.8	61.98 .61	55.2 1.5	10.46 .31	27.3 1.3	58.75 .33	18.5 1.7	46.04 .38	38.9 1.7	18.08 1.34	12.2 0.4
	.64	0.7	.30	1.1	.34	1.1	.38	1.1	1.37	0.1
19.8	62.62 .63	54.5 0.1	10.76 .30	28.4 0.8	59.09 .33	17.4 0.5	46.42 .38	37.8 0.5	19.45 1.37	12.3 0.5
Mar. 1.7	63.25 .61	54.4 0.5	11.06 .28	29.2 0.6	59.42 .31	16.9 0.0	46.80 .37	37.3 0.2	20.82 1.33	12.8 1.0
11.7	63.86 .57	54.9 1.3	11.34 .27	29.8 0.3	59.73 .30	16.9 0.6	47.17 .34	37.5 0.8	22.15 1.27	13.8 1.5
21.7	64.43 .52	56.2 1.8	11.61 .25	30.1 0.0	60.03 .27	17.5 1.1	47.51 .32	38.3 1.4	23.42 1.20	15.3 1.8
31.7	64.95 .44	58.0 2.3	11.86 .23	30.1 0.2	60.30 .25	18.6 1.6	47.83 .28	39.7 1.9	24.62 1.09	17.1 2.1
Apr. 10.6	65.39 .36	60.3 2.7	12.09 .21	29.9 0.4	60.55 .21	20.2 2.0	48.11 .25	41.6 2.3	25.71 .97	19.2 2.4
20.6	65.75 .27	63.0 3.1	12.30 .18	29.5 0.6	60.76 .18	22.2 2.3	48.36 .20	43.9 2.7	26.68 .83	21.6 2.6
30.6	66.02 .18	66.1 3.2	12.48 .15	28.9 0.8	60.94 .15	24.5 2.6	48.56 .15	46.6 2.9	27.51 .69	24.2 2.8
May 10.5	66.20 .07	69.3 3.3	12.63 .13	28.1 0.9	61.09 .10	27.1 2.6	48.71 .11	49.5 3.0	28.20 .52	27.0 2.9
20.5	66.27 .02	72.6 3.4	12.76 .09	27.2 0.9	61.19 .06	29.7 2.7	48.82 .06	52.5 3.1	28.72 .35	29.9 3.0
30.5	66.25 .11	76.0 3.2	12.85 .07	26.3 1.0	61.25 .03	32.4 2.7	48.88 .01	55.6 3.0	29.07 .17	32.9 2.9
June 9.5	66.14 .21	79.2 2.9	12.92 .03	25.3 0.9	61.28 .01	35.1 2.5	48.89 .04	58.6 2.9	29.24 .02	35.8 2.8
19.4	65.93 .29	82.1 2.7	12.95 .01	24.4 0.9	61.27 .06	37.6 2.4	48.85 .09	61.5 2.7	29.22 .20	38.6 2.7
29.4	65.64 .36	84.8 2.4	12.94 .03	23.5 0.9	61.21 .09	40.0 2.1	48.76 .13	64.2 2.3	29.02 .37	41.3 2.4
July 9.4	65.28 .44	87.2 1.9	12.91 .07	22.6 0.8	61.12 .12	42.1 1.8	48.63 .18	66.5 2.1	28.65 .54	43.7 2.1
19.4	64.84 .49	89.1 1.5	12.84 .10	21.8 0.7	61.00 .16	43.9 1.5	48.45 .21	68.6 1.6	28.11 .68	45.8 1.7
29.3	64.35 .54	90.6 0.9	12.74 .12	21.1 0.6	60.84 .19	45.4 1.1	48.24 .24	70.2 1.2	27.43 .81	47.5 1.3
Aug. 8.3	63.81 .57	91.5 0.5	12.62 .14	20.5 0.5	60.65 .21	46.5 0.8	48.00 .27	71.4 0.8	26.62 .90	48.8 0.8
18.3	63.24 .59	92.0 0.1	12.48 .16	20.0 0.4	60.44 .22	47.3 0.3	47.73 .29	72.2 0.3	25.72 .97	49.6 0.2
28.3	62.65 .59	91.9 0.5	12.32 .17	19.6 0.3	60.22 .23	47.6 0.1	47.44 .29	72.5 0.2	24.75 .99	49.8 0.2
Sept. 7.2	62.06 .58	91.4 1.1	12.15 .17	19.3 0.2	59.99 .23	47.5 0.6	47.15 .29	72.3 0.7	23.76 .98	49.6 0.8
17.2	61.48 .55	90.3 1.6	11.98 .15	19.1 0.0	59.76 .21	46.9 0.9	46.86 .28	71.6 1.1	22.78 .91	48.8 1.4
27.2	60.93 .51	88.7 2.1	11.83 .11	19.1 0.2	59.55 .19	46.0 1.4	46.58 .25	70.5 1.6	21.87 .82	47.4 1.8
Oct. 7.1	60.42 .45	86.6 2.5	11.69 .11	19.3 0.3	59.36 .17	44.6 1.8	46.33 .22	68.9 2.1	21.05 .68	45.6 2.2
17.1	59.97 .37	84.1 2.9	11.58 .07	19.6 0.5	59.19 .12	42.8 2.1	46.11 .18	66.8 2.4	20.37 .51	43.4 2.6
27.1	59.60 .27	81.2 3.3	11.51 .02	20.1 0.7	59.07 .08	40.7 2.5	45.93 .12	64.4 2.8	19.86 .30	40.8 2.8
Nov. 6.1	59.33 .18	77.9 3.5	11.49 .02	20.8 0.9	58.99 .02	38.2 2.7	45.81 .06	61.6 3.1	19.56 .09	38.0 3.0
16.0	59.15 .07	74.4 3.6	11.51 .07	21.7 1.1	58.97 .03	35.5 3.0	45.75 .00	58.5 3.4	19.47 .13	35.0 3.0
26.0	59.08 .05	70.8 3.7	11.58 .12	22.8 1.3	59.00 .09	32.5 3.1	45.75 .07	55.1 3.4	19.60 .37	32.0 2.9
Dec. 6.0	59.13 .16	67.1 3.7	11.70 .16	24.1 1.4	59.09 .14	29.4 3.2	45.82 .13	51.7 3.5	19.97 .59	29.1 2.7
15.9	59.29 .28	63.4 3.6	11.86 .21	25.5 1.5	59.23 .20	26.2 3.1	45.95 .20	48.2 3.4	20.56 .78	26.4 2.5
25.9	59.57 .37	59.8 3.3	12.07 .25	27.0 1.6	59.43 .23	23.1 3.0	46.15 .25	44.8 3.3	21.34 .97	23.9 2.1
35.9	59.94	56.5	12.32	28.6	59.66	20.1	46.40	41.5	22.31	21.8

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

375

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Ursæ Minoris.		η Draconis.		α Scorpii. (Antares.)		β Herculis.		A Draconis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 16 20	° ' " +75 58	h m 16 22	° ' " +61 43	h m 16 23	° ' " -26 12	h m 16 25	° ' " +21 42	h m 16 28	° ' " +68 58
	s	"	s	"	s	"	s	"	s	"
Jan. 0.9	17.75	51.3	36.59	68.9	20.10	38.8	57.32	15.1	6.86	47.9
10.9	18.31	48.2	36.94	65.7	20.39	39.3	57.57	12.6	7.26	44.7
20.9	19.00	45.6	37.34	63.0	20.70	39.8	57.84	10.2	7.75	41.9
30.8	19.80	43.5	37.79	60.7	21.03	40.5	58.13	8.2	8.31	39.6
Feb. 9.8	20.68	41.9	38.29	59.0	21.37	41.3	58.43	6.6	8.92	37.9
19.8	21.61	41.1	38.80	57.9	21.71	42.1	58.74	5.4	9.57	36.9
Mar. 1.8	22.55	40.9	39.32	57.6	22.05	42.9	59.05	4.7	10.22	36.5
11.7	23.47	41.4	39.82	57.9	22.37	43.7	59.34	4.4	10.87	36.8
21.7	24.34	42.5	40.29	58.8	22.68	44.4	59.62	4.7	11.48	37.8
31.7	25.13	44.2	40.73	60.4	22.97	45.1	59.89	5.4	12.05	39.4
Apr. 10.6	25.81	46.5	41.12	62.5	23.24	45.7	60.13	6.6	12.55	41.5
20.6	26.38	49.1	41.45	65.1	23.49	46.3	60.34	8.1	12.96	44.1
30.6	26.80	52.1	41.71	68.0	23.71	46.8	60.53	9.9	13.29	47.0
May 10.6	27.07	55.4	41.90	71.1	23.90	47.2	60.69	12.0	13.53	50.2
20.5	27.19	58.7	42.01	74.4	24.06	47.6	60.81	14.2	13.66	53.5
30.5	27.16	62.0	42.05	77.8	24.19	48.0	60.91	16.4	13.69	56.9
June 9.5	26.97	65.2	42.02	81.0	24.28	48.3	60.97	18.7	13.62	60.2
19.5	26.64	68.3	41.91	84.1	24.34	48.6	60.99	20.9	13.45	63.3
29.4	26.17	71.0	41.73	87.0	24.35	48.8	60.97	23.0	13.19	66.2
July 9.4	25.58	73.5	41.49	89.5	24.33	49.0	60.92	24.8	12.84	68.8
19.4	24.89	75.5	41.19	91.6	24.27	49.1	60.83	26.5	12.42	71.0
29.3	24.10	77.1	40.84	93.4	24.17	49.2	60.72	27.9	11.92	72.7
Aug. 8.3	23.23	78.2	40.44	94.6	24.04	49.1	60.57	29.0	11.37	74.0
18.3	22.31	78.8	40.01	95.4	23.89	48.9	60.40	29.8	10.78	74.8
28.3	21.36	78.9	39.56	95.6	23.71	48.7	60.21	30.3	10.16	75.0
Sept. 7.2	20.40	78.4	39.10	95.4	23.53	48.3	60.02	30.4	9.53	74.8
17.2	19.45	77.4	38.64	94.6	23.34	47.8	59.82	30.2	8.91	74.0
27.2	18.54	76.0	38.20	93.3	23.17	47.3	59.63	29.6	8.30	72.7
Oct. 7.2	17.69	74.1	37.80	91.5	23.01	46.7	59.46	28.7	7.73	70.9
17.1	16.93	71.7	37.43	89.2	22.88	46.1	59.32	27.5	7.22	68.7
27.1	16.27	68.9	37.13	86.5	22.80	45.5	59.21	25.9	6.79	66.0
Nov. 6.1	15.74	65.8	36.90	83.5	22.76	44.9	59.14	24.0	6.44	62.9
16.0	15.36	62.4	36.75	80.2	22.78	44.4	59.12	21.9	6.19	59.6
26.0	15.15	58.9	36.68	76.6	22.85	44.1	59.15	19.5	6.06	56.0
Dec. 6.0	15.10	55.2	36.71	73.0	22.98	43.9	59.24	16.9	6.04	52.3
16.0	15.23	51.5	36.83	69.3	23.15	43.9	59.37	14.2	6.15	48.6
25.9	15.53	48.0	37.04	65.7	23.38	44.1	59.55	11.5	6.37	45.0
35.9	16.00	44.7	37.34	62.3	23.64	44.4	59.77	8.9	6.70	41.6

FIXED STARS, 1901.
(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Ophiuchi.		α Triang. Australis.		η Herculis.		κ Ophiuchi.		ε Ursæ Minoris.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 16 31	° -10 21	h m 16 38	° -68 50	h m 16 39	° +39 6	h m 16 52	° + 93 1	h m 16 55	° +82 11
	s	"	s	"	s	"	s	"	s	"
Jan. 0.9	42.27	57.2	9.68	34.0	29.12	32.3	58.55	43.6	54.25	56.4
10.9	42.52	58.4	10.26	32.3	29.37	29.3	58.77	41.6	54.94	53.2
20.9	42.80	59.6	10.92	31.0	29.65	26.6	59.02	39.7	55.89	50.4
30.8	43.09	60.7	11.64	30.1	29.96	24.2	59.29	37.9	57.09	48.0
Feb. 9.8	43.40	61.8	12.39	29.6	30.29	22.4	59.58	36.4	58.48	46.1
19.8	43.71	62.8	13.16	29.5	30.63	21.1	59.87	35.3	60.01	44.9
Mar. 1.8	44.01	63.5	13.93	29.8	30.98	20.3	60.16	34.5	61.61	44.2
11.7	44.31	64.1	14.69	30.5	31.32	20.2	60.45	34.1	63.23	44.3
21.7	44.59	64.5	15.43	31.6	31.64	20.7	60.73	34.0	64.82	45.0
31.7	44.86	64.7	16.13	33.0	31.94	21.8	61.00	34.4	66.30	46.3
Apr. 10.7	45.11	64.7	16.78	34.7	32.22	23.3	61.25	35.1	67.63	48.1
20.6	45.34	64.5	17.37	36.6	32.47	25.4	61.48	36.2	68.77	50.5
30.6	45.54	64.1	17.89	38.8	32.69	27.8	61.69	37.5	69.68	53.2
May 10.6	45.72	63.6	18.34	41.1	32.87	30.4	61.88	39.0	70.33	56.2
20.5	45.87	63.1	18.71	43.6	33.00	33.3	62.03	40.7	70.71	59.4
30.5	46.00	62.5	18.99	46.1	33.10	36.2	62.16	42.4	70.81	62.7
June 9.5	46.09	61.9	19.17	48.6	33.15	39.1	62.25	44.2	70.63	66.0
19.5	46.14	61.2	19.25	51.1	33.15	41.9	62.31	46.0	70.18	69.2
29.5	46.16	60.6	19.24	53.5	33.11	44.6	62.34	47.7	69.46	72.1
July 9.4	46.14	60.0	19.12	55.7	33.03	47.1	62.32	49.2	68.50	74.8
19.4	46.09	59.5	18.91	57.6	32.91	49.2	62.27	50.6	67.33	77.2
29.4	46.01	59.0	18.60	59.2	32.75	51.0	62.19	51.8	65.97	79.1
Aug. 8.3	45.89	58.5	18.22	60.5	32.56	52.4	62.07	52.8	64.44	80.7
18.3	45.75	58.1	17.77	61.3	32.33	53.4	61.93	53.6	62.80	81.7
28.3	45.59	57.7	17.28	61.7	32.09	54.0	61.76	54.2	61.07	82.3
Sept. 7.2	45.43	57.4	16.77	61.6	31.84	54.2	61.58	54.5	59.28	82.4
17.2	45.25	57.2	16.25	61.0	31.58	53.9	61.40	54.6	57.49	81.9
27.2	45.09	57.0	15.75	60.0	31.33	53.1	61.22	54.4	55.72	81.0
Oct. 7.2	44.94	56.9	15.30	58.5	31.10	51.8	61.05	54.0	54.04	79.5
17.1	44.82	56.9	14.92	56.7	30.90	50.2	60.91	53.3	52.46	77.6
27.1	44.73	57.1	14.62	54.5	30.73	48.1	60.80	52.3	51.05	75.3
Nov. 6.1	44.69	57.4	14.44	52.0	30.61	45.7	60.72	51.1	49.84	72.6
16.1	44.69	57.8	14.37	49.4	30.54	42.9	60.69	49.6	48.86	69.6
26.0	44.74	58.4	14.43	46.8	30.53	39.9	60.71	47.9	48.14	66.3
Dec. 6.0	44.85	59.2	14.61	44.2	30.58	36.7	60.77	46.0	47.72	62.8
16.0	45.00	60.1	14.92	41.8	30.69	33.4	60.89	44.0	47.61	59.3
25.9	45.19	61.2	15.35	39.5	30.85	30.1	61.05	41.9	47.81	55.8
35.9	45.43	62.4	15.88	37.6	31.06	27.1	61.25	39.8	48.32	52.4

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>d</i> Herculis.		<i>η</i> Ophiuchi.		<i>α</i> ¹ Herculis.		<i>π</i> Herculis.		<i>θ</i> Ophiuchi.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 16 57	° +33 42	h m 17 4	° -15 36	h m 17 10	° +14 30	h m 17 11	° +36 54	h m 17 15	° -24 53
	s	"	s	"	s	"	s	"	s	"
Jan. 0.9	56.18	38.2	41.75	4.4	7.51	11.0	34.92	71.9	55.49	57.4
10.9	56.40 ^{.22}	35.3 ^{2.9}	41.99 ^{.24}	5.2 ^{0.8}	7.72 ^{.21}	8.7 ^{2.3}	35.13 ^{.21}	68.9 ^{3.0}	55.73 ^{.24}	57.6 ^{0.2}
20.9	56.65 ^{.25}	32.6 ^{2.7}	42.25 ^{.26}	6.0 ^{0.8}	7.96 ^{.24}	6.6 ^{2.1}	35.38 ^{.25}	66.1 ^{2.8}	56.01 ^{.28}	57.9 ^{0.3}
30.9	56.94 ^{.29}	30.2 ^{2.4}	42.54 ^{.29}	6.8 ^{0.8}	8.22 ^{.26}	4.7 ^{1.9}	35.66 ^{.28}	63.6 ^{2.5}	56.30 ^{.29}	58.2 ^{0.3}
Feb. 9.8	57.25 ^{.31}	28.3 ^{1.9}	42.84 ^{.30}	7.5 ^{0.7}	8.50 ^{.28}	3.1 ^{1.6}	35.97 ^{.31}	61.6 ^{2.0}	56.62 ^{.32}	58.6 ^{0.4}
	57.25 ^{.32}	28.3 ^{1.4}	42.84 ^{.31}	7.5 ^{0.7}	8.50 ^{.29}	3.1 ^{1.2}	35.97 ^{.32}	61.6 ^{1.6}	56.62 ^{.32}	58.6 ^{0.4}
19.8	57.57	26.9	43.15	8.2	8.79	1.9	36.29	60.0	56.94	59.0
Mar. 1.8	57.89 ^{.32}	26.0 ^{0.9}	43.46 ^{.31}	8.8 ^{0.6}	9.08 ^{.29}	1.0 ^{0.9}	36.62 ^{.33}	59.1 ^{0.9}	57.27 ^{.33}	59.4 ^{0.4}
11.8	58.22 ^{.33}	25.7 ^{0.3}	43.76 ^{.30}	9.3 ^{0.5}	9.37 ^{.29}	0.6 ^{0.4}	36.96 ^{.34}	58.7 ^{0.4}	57.59 ^{.32}	59.7 ^{0.3}
21.7	58.53 ^{.31}	26.0 ^{0.3}	44.06 ^{.30}	9.6 ^{0.3}	9.66 ^{.29}	0.6 ^{0.0}	37.28 ^{.32}	58.9 ^{0.2}	57.91 ^{.32}	60.0 ^{0.3}
31.7	58.83 ^{.30}	26.8 ^{0.8}	44.35 ^{.29}	9.7 ^{0.1}	9.94 ^{.28}	1.0 ^{0.4}	37.59 ^{.31}	59.7 ^{0.8}	58.22 ^{.31}	60.2 ^{0.2}
	58.83 ^{.28}	26.8 ^{1.4}	44.35 ^{.27}	9.7 ^{0.0}	9.94 ^{.26}	1.0 ^{0.9}	37.59 ^{.30}	59.7 ^{1.3}	58.22 ^{.30}	60.2 ^{0.2}
Apr. 10.7	59.11	28.2	44.62	9.7	10.20	1.9	37.89	61.0	58.52	60.4
20.6	59.36 ^{.25}	30.0 ^{1.8}	44.88 ^{.26}	9.6 ^{0.1}	10.44 ^{.24}	3.1 ^{1.2}	38.16 ^{.27}	62.8 ^{1.8}	58.80 ^{.28}	60.6 ^{0.2}
30.6	59.59 ^{.23}	32.2 ^{2.2}	45.12 ^{.24}	9.3 ^{0.3}	10.67 ^{.23}	4.6 ^{1.5}	38.40 ^{.24}	65.1 ^{2.3}	59.06 ^{.26}	60.7 ^{0.1}
May 10.6	59.78 ^{.19}	34.6 ^{2.1}	45.33 ^{.21}	9.0 ^{0.3}	10.87 ^{.20}	6.4 ^{1.8}	38.61 ^{.21}	67.6 ^{2.5}	59.30 ^{.24}	60.8 ^{0.1}
20.6	59.94 ^{.16}	37.3 ^{2.7}	45.52 ^{.19}	8.6 ^{0.4}	11.04 ^{.17}	8.3 ^{1.9}	38.78 ^{.17}	70.4 ^{2.8}	59.51 ^{.21}	60.9 ^{0.1}
	59.94 ^{.11}	37.3 ^{2.8}	45.52 ^{.16}	8.6 ^{0.4}	11.04 ^{.14}	8.3 ^{2.0}	38.78 ^{.13}	70.4 ^{2.9}	59.51 ^{.18}	60.9 ^{0.1}
30.5	60.05	40.1	45.68	8.2	11.18	10.3	38.91	73.3	59.69	61.0
June 9.5	60.13 ^{.08}	42.9 ^{2.8}	45.80 ^{.12}	7.8 ^{0.4}	11.28 ^{.10}	12.4 ^{2.1}	39.00 ^{.09}	76.2 ^{2.9}	59.83 ^{.14}	61.1 ^{0.1}
19.5	60.17 ^{.04}	45.6 ^{2.7}	45.89 ^{.09}	7.4 ^{0.4}	11.35 ^{.07}	14.4 ^{2.0}	39.05 ^{.05}	79.1 ^{2.9}	59.94 ^{.11}	61.2 ^{0.1}
29.5	60.16 ^{.01}	48.3 ^{2.7}	45.94 ^{.05}	7.0 ^{0.4}	11.38 ^{.03}	16.4 ^{2.0}	39.05 ^{.00}	81.9 ^{2.8}	60.01 ^{.07}	61.3 ^{0.1}
July 9.4	60.11 ^{.05}	50.7 ^{2.4}	45.95 ^{.01}	6.6 ^{0.4}	11.38 ^{.05}	18.2 ^{1.8}	39.00 ^{.05}	84.5 ^{2.6}	60.03 ^{.02}	61.4 ^{0.1}
	60.11 ^{.09}	50.7 ^{2.2}	45.95 ^{.02}	6.6 ^{0.3}	11.38 ^{.05}	18.2 ^{1.7}	39.00 ^{.08}	84.5 ^{2.4}	60.03 ^{.02}	61.4 ^{0.2}
19.4	60.02	52.9	45.93	6.3	11.33	19.9	38.92	86.9	60.01	61.6
29.4	59.89 ^{.13}	54.8 ^{1.9}	45.86 ^{.07}	6.0 ^{0.3}	11.25 ^{.08}	21.4 ^{1.5}	38.79 ^{.13}	88.9 ^{2.0}	59.95 ^{.06}	61.7 ^{0.1}
Aug. 8.3	59.73 ^{.16}	56.3 ^{1.5}	45.76 ^{.10}	5.7 ^{0.3}	11.14 ^{.11}	22.6 ^{1.2}	38.62 ^{.17}	90.6 ^{1.7}	59.85 ^{.10}	61.8 ^{0.1}
18.3	59.54 ^{.19}	57.5 ^{1.2}	45.63 ^{.13}	5.5 ^{0.2}	11.00 ^{.14}	23.6 ^{1.0}	38.42 ^{.20}	91.9 ^{1.3}	59.72 ^{.13}	61.8 ^{0.0}
28.3	59.32 ^{.22}	58.2 ^{0.7}	45.48 ^{.15}	5.2 ^{0.3}	10.83 ^{.17}	24.3 ^{0.7}	38.19 ^{.23}	92.9 ^{1.0}	59.56 ^{.16}	61.8 ^{0.0}
	59.32 ^{.23}	58.2 ^{0.4}	45.48 ^{.18}	5.2 ^{0.2}	10.83 ^{.18}	24.3 ^{0.4}	38.19 ^{.24}	92.9 ^{0.4}	59.56 ^{.18}	61.8 ^{0.1}
Sept. 7.3	59.09	58.6	45.30	5.0	10.65	24.7	37.95	93.3	59.38	61.7
17.2	58.85 ^{.24}	58.5 ^{0.1}	45.12 ^{.18}	4.8 ^{0.2}	10.46 ^{.19}	24.8 ^{0.1}	37.70 ^{.25}	93.4 ^{0.1}	59.19 ^{.19}	61.5 ^{0.2}
27.2	58.62 ^{.23}	58.0 ^{0.5}	44.95 ^{.17}	4.6 ^{0.2}	10.27 ^{.19}	24.6 ^{0.2}	37.44 ^{.26}	93.0 ^{0.4}	59.00 ^{.19}	61.2 ^{0.3}
Oct. 7.2	58.39 ^{.23}	57.1 ^{0.9}	44.78 ^{.17}	4.4 ^{0.2}	10.09 ^{.18}	24.2 ^{0.4}	37.21 ^{.23}	92.1 ^{0.9}	58.82 ^{.18}	60.8 ^{0.4}
17.2	58.20 ^{.19}	55.7 ^{1.4}	44.64 ^{.14}	4.2 ^{0.2}	9.93 ^{.16}	23.4 ^{0.8}	36.99 ^{.22}	90.8 ^{1.3}	58.66 ^{.16}	60.4 ^{0.4}
	58.20 ^{.17}	55.7 ^{1.8}	44.64 ^{.11}	4.2 ^{0.0}	9.93 ^{.13}	23.4 ^{1.1}	36.99 ^{.19}	90.8 ^{1.7}	58.66 ^{.12}	60.4 ^{0.4}
27.1	58.03	53.9	44.53	4.2	9.80	22.3	36.80	89.1	58.54	60.0
Nov. 6.1	57.91 ^{.12}	51.8 ^{2.1}	44.46 ^{.07}	4.2 ^{0.0}	9.71 ^{.09}	20.9 ^{1.4}	36.66 ^{.14}	87.0 ^{2.1}	58.45 ^{.09}	59.6 ^{0.4}
16.1	57.84 ^{.07}	49.3 ^{2.5}	44.43 ^{.03}	4.3 ^{0.1}	9.66 ^{.05}	19.3 ^{1.5}	36.56 ^{.10}	84.5 ^{2.5}	58.42 ^{.03}	59.2 ^{0.4}
26.0	57.82 ^{.02}	46.6 ^{2.7}	44.45 ^{.02}	4.5 ^{0.2}	9.65 ^{.01}	17.4 ^{1.9}	36.52 ^{.01}	81.7 ^{2.8}	58.43 ^{.01}	58.9 ^{0.3}
Dec. 6.0	57.85 ^{.03}	43.7 ^{2.9}	44.53 ^{.08}	4.9 ^{0.4}	9.70 ^{.05}	15.3 ^{2.1}	36.53 ^{.01}	78.7 ^{3.0}	58.50 ^{.07}	58.7 ^{0.2}
	57.85 ^{.09}	43.7 ^{3.1}	44.53 ^{.12}	4.9 ^{0.5}	9.70 ^{.09}	15.3 ^{2.2}	36.53 ^{.07}	78.7 ^{3.1}	58.50 ^{.12}	58.7 ^{0.1}
16.0	57.94	40.6	44.65	5.4	9.79	13.1	36.60	75.6	58.62	58.6
26.0	58.08 ^{.14}	37.5 ^{3.1}	44.82 ^{.17}	6.0 ^{0.6}	9.93 ^{.14}	10.8 ^{2.3}	36.73 ^{.13}	72.4 ^{3.2}	58.79 ^{.17}	58.6 ^{0.0}
35.9	58.27 ^{.19}	34.4 ^{3.1}	45.03 ^{.21}	6.7 ^{0.7}	10.11 ^{.18}	8.5 ^{2.3}	36.90 ^{.17}	69.3 ^{3.1}	59.00 ^{.21}	58.7 ^{0.1}

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Ophiuchi.		δ Aræ.		β Draconis.		α Ophiuchi.		ϵ Herculis	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 17 20	° ' " -24 4	h m 17 22	° ' " -60 35	h m 17 28	° ' " +52 22	h m 17 30	° ' " +12 37	h m 17 36	° ' " +46 3
Jan. 1.0	19.14	58.5	8.74	56.3	9.97	26.8	19.84	56.3	38.84	31.5
10.9	19.38	58.7	9.12	54.5	10.17	23.4	20.03	54.1	39.02	28.2
20.9	19.64	59.0	9.57	53.0	10.43	20.3	20.25	52.1	39.25	25.2
30.9	19.94	59.3	10.07	51.7	10.74	17.5	20.50	50.2	39.53	22.4
Feb. 9.8	20.25	59.7	10.60	50.8	11.09	15.2	20.77	48.6	39.85	20.1
19.8	20.57	60.1	11.16	50.3	11.47	13.4	21.05	47.4	40.19	18.3
Mar. 1.8	20.89	60.5	11.74	50.0	11.87	12.3	21.34	46.5	40.55	17.1
11.8	21.21	60.8	12.31	50.1	12.28	11.8	21.63	46.0	40.92	16.5
21.7	21.53	61.0	12.88	50.5	12.69	12.0	21.92	46.0	41.28	16.5
31.7	21.84	61.2	13.44	51.1	13.09	12.8	22.20	46.4	41.64	17.2
Apr. 10.7	22.14	61.4	13.97	52.1	13.46	14.2	22.47	47.1	41.99	18.5
20.7	22.42	61.5	14.47	53.3	13.80	16.1	22.72	48.3	42.30	20.3
30.6	22.68	61.5	14.93	54.7	14.11	18.5	22.96	49.7	42.59	22.6
May 10.6	22.92	61.6	15.35	56.3	14.37	21.3	23.18	51.4	42.84	25.2
20.6	23.14	61.6	15.71	58.1	14.58	24.4	23.36	53.2	43.05	28.2
June 30.5	23.32	61.6	16.02	60.1	14.73	27.6	23.52	55.2	43.21	31.3
9.5	23.47	61.6	16.25	62.1	14.83	31.0	23.65	57.2	43.33	34.5
19.5	23.58	61.7	16.41	64.2	14.87	34.3	23.74	59.2	43.39	37.7
29.5	23.65	61.8	16.50	66.2	14.85	37.5	23.79	61.2	43.40	40.9
July 9.4	23.68	61.9	16.51	68.2	14.77	40.5	23.81	63.0	43.36	43.8
19.4	23.66	61.9	16.44	70.0	14.63	43.2	23.78	64.7	43.26	46.5
29.4	23.61	62.0	16.30	71.7	14.44	45.7	23.72	66.2	43.11	49.0
Aug. 8.4	23.51	62.1	16.09	73.1	14.20	47.7	23.62	67.4	42.92	51.0
18.3	23.38	62.1	15.81	74.2	13.91	49.3	23.49	68.4	42.69	52.7
28.3	23.22	62.1	15.49	75.0	13.60	50.5	23.33	69.2	42.43	54.0
Sept. 7.3	23.04	62.0	15.13	75.3	13.26	51.2	23.15	69.7	42.14	54.8
17.2	22.85	61.8	14.75	75.3	12.91	51.4	22.96	70.0	41.84	55.1
27.2	22.66	61.6	14.37	74.8	12.55	51.1	22.77	70.0	41.53	54.0
Oct. 7.2	22.48	61.3	14.01	73.9	12.20	50.2	22.59	69.5	41.23	54.2
17.2	22.32	60.9	13.69	72.7	11.88	48.9	22.43	68.9	40.96	53.0
Nov. 27.1	22.20	60.5	13.43	71.1	11.60	47.1	22.29	67.9	40.71	51.4
6.1	22.11	60.2	13.23	69.2	11.35	44.8	22.18	66.7	40.50	49.3
16.1	22.07	59.9	13.12	67.1	11.17	42.1	22.12	65.3	40.34	46.8
26.1	22.08	59.6	13.10	64.9	11.05	39.1	22.10	63.6	40.24	44.0
Dec. 6.0	22.14	59.4	13.17	62.6	10.99	35.8	22.12	61.7	40.20	40.9
16.0	22.26	59.3	13.33	60.4	11.01	32.4	22.20	59.6	40.22	37.6
26.0	22.42	59.3	13.59	58.3	11.10	28.8	22.32	57.4	40.31	34.2
35.9	22.63	59.5	13.92	56.4	11.26	25.4	22.48	55.2	40.45	30.8

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

379

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ω Draconis.		μ Herculis.		ψ^1 Draconis.		θ Herculis.		γ Draconis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 17 37	° +68 47	h m 17 42	° +27 46	h m 17 43	° +72 11	h m 17 52	° +37 15	h m 17 54	° +51 29
	s "	"	s "	"	s "	"	s "	"	s "	"
Jan. 1.0	28.00	.22 72.3	34.26	.17 43.3	37.14	.22 50.5	50.43	.16 49.7	16.72	.16 62.4
10.9	28.22	.22 68.8	34.43	.17 40.5	37.36	.22 47.0	50.59	.16 46.6	16.88	.16 59.0
20.9	28.56	.34 65.6	34.04	.21 37.9	37.72	.36 43.8	50.79	.20 43.7	17.10	.22 55.8
30.9	28.99	.43 62.7	34.88	.24 35.5	38.20	.48 40.9	51.04	.25 41.1	17.38	.28 52.9
Feb. 9.9	29.50	.51 60.3	35.15	.27 33.5	38.77	.57 38.4	51.31	.27 38.8	17.70	.32 50.4
	.57	1.9	.29	1.6	.65	1.9	.30	1.8	.35	2.0
19.8	30.07	.62 58.4	35.44	.30 31.9	39.42	.71 36.5	51.61	.32 37.0	18.05	.39 48.4
Mar. 1.8	30.69	.64 57.2	35.74	.31 30.7	40.13	.75 35.2	51.93	.33 35.7	18.44	.39 47.0
11.8	31.33	.64 56.6	36.05	.30 30.1	40.88	.75 34.5	52.26	.33 35.0	18.83	.40 46.2
21.7	31.97	.63 56.7	36.35	.30 30.1	41.63	.75 34.5	52.59	.33 34.9	19.23	.40 46.1
31.7	32.60	.59 57.5	36.65	.30 30.6	42.36	.73 35.2	52.92	.33 35.4	19.63	.40 46.6
	.59	1.4	.29	0.9	.70	1.3	.31	1.1	.38	1.1
Apr. 10.7	33.19	.54 58.9	36.94	.28 31.5	43.06	.63 36.5	53.23	.30 36.5	20.01	.36 47.7
20.7	33.73	.47 60.9	37.22	.25 33.0	43.69	.56 38.4	53.53	.28 38.1	20.37	.33 49.5
30.6	34.20	.40 63.3	37.47	.23 34.8	44.25	.46 40.8	53.81	.25 40.1	20.70	.29 51.7
May 10.6	34.60	.30 66.2	37.70	.20 37.0	44.71	.36 43.6	54.06	.21 42.5	20.99	.24 54.3
20.6	34.90	.21 69.4	37.90	.16 39.4	45.07	.24 46.7	54.27	.18 45.2	21.23	.19 57.3
	.21	3.3	.16	2.6	.24	3.3	.18	2.9	.19	3.2
30.6	35.11	.10 72.7	38.06	.13 42.0	45.31	.13 50.0	54.45	.14 48.1	21.42	.14 60.5
June 9.5	35.21	.00 76.1	38.19	.09 44.7	45.44	.00 53.4	54.59	.09 51.1	21.56	.08 63.8
19.5	35.21	.10 79.6	38.28	.04 47.4	45.44	.13 56.8	54.68	.04 54.2	21.64	.02 67.2
29.5	35.11	.20 82.9	38.32	.01 50.0	45.31	.24 60.2	54.72	.00 57.1	21.66	.04 70.5
July 9.4	34.91	.29 86.1	38.33	.01 52.5	45.07	.35 63.4	54.72	.05 60.0	21.62	.10 73.6
	.29	2.9	.01	2.2	.35	2.9	.05	2.6	.10	3.0
19.4	34.62	.38 89.0	38.29	.08 54.7	44.72	.46 66.3	54.67	.09 62.6	21.52	.16 76.6
29.4	34.24	.46 91.6	38.21	.12 56.8	44.26	.54 68.9	54.58	.14 65.0	21.36	.21 79.2
Aug. 8.4	33.78	.53 93.8	38.09	.16 58.5	43.72	.63 71.2	54.44	.18 67.1	21.15	.25 81.5
18.3	33.25	.58 95.6	37.93	.18 60.0	43.09	.69 73.0	54.26	.21 68.8	20.90	.30 83.5
28.3	32.67	.62 96.9	37.75	.21 61.0	42.40	.74 74.4	54.05	.24 70.1	20.60	.32 85.0
	.62	0.8	.21	0.7	.74	0.9	.24	0.9	.32	1.0
Sept. 7.3	32.05	.64 97.7	37.54	.22 61.7	41.66	.77 75.3	53.81	.25 71.0	20.28	.34 86.0
17.3	31.41	.64 98.0	37.32	.22 62.1	40.89	.78 75.6	53.56	.26 71.5	19.94	.35 86.5
27.2	30.77	.64 97.8	37.10	.22 62.0	40.11	.76 75.4	53.30	.25 71.5	19.59	.35 86.0
Oct. 7.2	30.13	.60 97.0	36.88	.20 61.5	39.35	.73 74.8	53.05	.24 71.1	19.24	.32 86.0
17.2	29.53	.55 95.7	36.68	.18 60.6	38.62	.68 73.5	52.81	.21 70.2	18.92	.30 85.0
	.55	1.8	.18	1.2	.68	1.7	.21	1.3	.30	1.5
27.1	28.98	.49 93.9	36.50	.14 59.4	37.94	.60 71.8	52.60	.18 68.9	18.62	.26 83.5
Nov. 6.1	28.49	.40 91.7	36.36	.10 57.7	37.34	.51 69.6	52.42	.14 67.1	18.36	.21 81.6
16.1	28.09	.30 89.0	36.26	.06 55.7	36.83	.39 67.0	52.28	.09 65.0	18.15	.16 79.2
26.1	27.79	.20 85.9	36.20	.00 53.4	36.44	.27 64.0	52.19	.03 62.5	17.99	.08 76.4
Dec. 6.0	27.59	.08 82.6	36.20	.04 50.9	36.17	.14 60.7	52.16	.02 59.7	17.91	.02 73.3
	.08	3.5	.04	2.7	.14	3.5	.02	3.0	.02	3.4
16.0	27.51	.03 79.1	36.24	.10 48.2	36.03	.00 57.2	52.18	.07 56.7	17.89	.05 69.9
26.0	27.54	.16 75.5	36.34	.14 45.3	36.03	.14 53.6	52.25	.13 53.6	17.94	.12 66.5
36.0	27.70	71.9	36.48	42.5	36.17	50.0	52.38	50.4	18.06	63.0

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ^2 Sagittarii.		ϵ Herculis.		μ Sagittarii.		η Serpentis.		λ Sagittarii.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 17 59	° ' 25	h m 18 3	° ' +28 44	h m 18 7	° ' -21 4	h m 18 16	° ' -2 55	h m 18 21	° ' -25 28
	s	"	s	"	s	"	s	"	s	"
Jan. 1.0	26.50	25.17	40.03	57.7	50.22	60.5	10.83	24.5	51.30	30.7
11.0	26.71	25.3	40.18	54.9	50.40	60.7	10.98	25.7	51.48	30.5
20.9	26.95	25.0	40.37	52.3	50.62	60.8	11.17	26.9	51.69	30.4
30.9	27.23	24.8	40.60	49.9	50.87	61.0	11.39	28.0	51.93	30.2
Feb. 9.9	27.53	24.6	40.85	47.7	51.14	61.2	11.63	28.9	52.20	30.1
19.8	27.85	24.5	41.13	46.0	51.43	61.3	11.89	29.7	52.50	30.0
Mar. 1.8	28.18	24.4	41.42	44.8	51.74	61.4	12.16	30.3	52.80	29.9
11.8	28.51	24.4	41.72	44.1	52.05	61.4	12.45	30.6	53.12	29.7
21.8	28.85	24.3	42.03	44.0	52.36	61.3	12.73	30.6	53.44	29.5
31.7	29.19	24.2	42.34	44.3	52.67	61.2	13.02	30.3	53.76	29.2
Apr. 10.7	29.52	24.2	42.64	45.2	52.98	60.9	13.30	29.8	54.08	28.9
20.7	29.84	24.2	42.92	46.6	53.27	60.6	13.58	29.1	54.39	28.6
30.7	30.14	24.2	43.19	48.4	53.56	60.2	13.85	28.1	54.70	28.2
May 10.6	30.42	24.2	43.44	50.6	53.83	59.8	14.10	27.0	54.98	27.9
20.6	30.68	24.4	43.66	53.0	54.08	59.4	14.32	25.7	55.25	27.6
30.6	30.91	24.5	43.84	55.7	54.30	59.0	14.53	24.4	55.49	27.4
June 9.5	31.11	24.8	43.99	58.4	54.49	58.7	14.71	23.0	55.70	27.3
19.5	31.27	25.1	44.10	61.2	54.64	58.4	14.85	21.7	55.87	27.2
29.5	31.38	25.4	44.17	64.0	54.75	58.2	14.96	20.5	56.00	27.2
July 9.5	31.45	25.9	44.20	66.6	54.82	58.0	15.02	19.3	56.09	27.3
19.4	31.47	26.3	44.18	69.0	54.85	58.0	15.05	18.2	56.13	27.5
29.4	31.44	26.7	44.11	71.3	54.83	57.9	15.03	17.3	56.12	27.7
Aug. 8.4	31.37	27.2	44.01	73.2	54.77	58.0	14.97	16.5	56.07	28.0
18.4	31.25	27.6	43.86	74.8	54.67	58.0	14.88	15.8	55.98	28.2
28.3	31.10	27.9	43.69	76.1	54.54	58.1	14.75	15.3	55.85	28.4
Sept. 7.3	30.92	28.1	43.49	77.0	54.38	58.1	14.60	14.9	55.68	28.6
17.3	30.72	28.2	43.27	77.6	54.20	58.1	14.43	14.7	55.50	28.8
27.2	30.52	28.1	43.04	77.7	54.01	58.1	14.25	14.7	55.31	28.8
Oct. 7.2	30.32	27.9	42.82	77.4	53.82	58.0	14.07	14.8	55.11	28.8
17.2	30.13	27.6	42.61	76.7	53.64	57.9	13.89	15.0	54.93	28.7
27.2	29.97	27.2	42.42	75.6	53.49	57.8	13.74	15.4	54.76	28.5
Nov. 6.1	29.84	26.7	42.26	74.1	53.37	57.6	13.62	15.9	54.63	28.3
16.1	29.77	26.1	42.14	72.3	53.29	57.5	13.54	16.6	54.54	28.0
26.1	29.74	25.5	42.06	70.1	53.26	57.4	13.49	17.4	54.49	27.7
Dec. 6.1	29.76	24.9	42.03	67.7	53.27	57.3	13.49	18.4	54.49	27.4
16.0	29.83	24.4	42.05	65.0	53.34	57.3	13.53	19.5	54.54	27.1
26.0	29.96	23.8	42.13	62.2	53.45	57.4	13.62	20.7	54.64	26.9
36.0	30.14	23.4	42.25	59.4	53.60	57.5	13.75	21.9	54.79	26.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Draconis.			ι Aquilæ			ζ Pavonis			α Lyrae. (Vega.)			β Lyrae.		
	Right Ascension.	Declina- tion North.		Right Ascension.	Declina- tion South.		Right Ascension.	Declina- tion South.		Right Ascension.	Declina- tion North.		Right Ascension.	Declina- tion North.	
	h m 18 22	° ' " +72 41		h m 18 29	° ' " - 8 18		h m 18 31	° ' " -71 30		h m 18 33	° ' " +38 41		h m 18 46	° ' " +33 14	
	s	"		s	"		s	"		s	"		s	"	
Jan. 1.0	45.79	27.5	48.82	43.7	25.84	40.7	34.12	33.4	24.59	56.6					
11.0	45.90	24.0	48.97	44.6	26.19	37.9	34.23	30.3	24.70	53.7					
21.0	46.14	20.6	49.15	45.4	26.65	35.3	34.39	27.3	24.84	50.9					
30.9	46.52	17.5	49.37	46.2	27.22	32.9	34.59	24.6	25.03	48.3					
Feb. 9.9	47.02	14.7	49.60	46.8	27.88	30.8	34.84	22.1	25.25	45.9					
19.9	47.62	12.3	49.86	47.4	28.61	29.0	35.11	20.0	25.50	43.9					
Mar. 1.8	48.30	10.5	50.13	47.7	29.40	27.5	35.41	18.5	25.78	42.4					
11.8	49.03	9.4	50.42	47.8	30.22	26.4	35.73	17.5	26.07	41.4					
21.8	49.80	8.9	50.71	47.7	31.07	25.7	36.06	17.0	26.39	40.9					
31.8	50.57	9.1	51.00	47.4	31.92	25.4	36.39	17.2	26.70	41.0					
Apr. 10.7	51.32	9.9	51.29	46.9	32.77	25.4	36.73	18.0	27.02	41.7					
20.7	52.03	11.3	51.58	46.2	33.60	25.9	37.05	19.3	27.33	42.9					
30.7	52.68	13.3	51.85	45.4	34.39	26.7	37.36	21.1	27.63	44.5					
May 10.6	53.25	15.8	52.12	44.4	35.13	27.8	37.65	23.4	27.92	46.6					
20.6	53.73	18.7	52.36	43.3	35.80	29.3	37.91	26.0	28.18	49.1					
30.6	54.09	21.8	52.58	42.2	36.40	31.1	38.13	28.8	28.41	51.8					
June 9.6	54.34	25.2	52.78	41.1	36.90	33.2	38.31	31.9	28.60	54.7					
19.5	54.46	28.7	52.94	40.0	37.30	35.4	38.45	35.0	28.75	57.6					
29.5	54.45	32.2	53.06	39.0	37.58	37.8	38.54	38.2	28.86	60.6					
July 9.5	54.32	35.6	53.14	38.1	37.75	40.2	38.58	41.2	28.93	63.6					
19.5	54.07	38.8	53.18	37.2	37.78	42.7	38.57	44.2	28.94	66.4					
29.4	53.70	41.8	53.18	36.5	37.69	45.1	38.52	46.9	28.91	69.0					
Aug. 8.4	53.22	44.5	53.14	36.0	37.48	47.3	38.41	49.3	28.83	71.3					
18.4	52.65	46.8	53.06	35.5	37.16	49.3	38.26	51.4	28.70	73.4					
28.4	52.00	48.7	52.94	35.2	36.73	51.0	38.07	53.2	28.54	75.1					
Sept. 7.3	51.28	50.2	52.79	34.9	36.22	52.3	37.84	54.5	28.35	76.5					
17.3	50.52	51.1	52.63	34.8	35.65	53.2	37.60	55.4	28.13	77.5					
27.3	49.73	51.6	52.45	34.7	35.04	53.5	37.34	55.9	27.89	78.0					
Oct. 7.2	48.93	51.5	52.27	34.8	34.42	53.4	37.08	55.9	27.65	78.1					
17.2	48.15	50.9	52.09	34.9	33.82	52.8	36.82	55.4	27.42	77.8					
27.2	47.41	49.7	51.94	35.2	33.26	51.7	36.58	54.5	27.20	77.0					
Nov. 6.2	46.72	48.1	51.81	35.5	32.78	50.1	36.37	53.1	27.01	75.8					
16.1	46.12	45.9	51.72	36.0	32.40	48.1	36.20	51.3	26.84	74.2					
26.1	45.62	43.3	51.67	36.5	32.13	45.8	36.07	49.1	26.72	72.2					
Dec. 6.1	45.23	40.4	51.66	37.2	32.00	43.2	35.99	46.5	26.64	69.9					
16.0	44.97	37.1	51.69	37.9	31.99	40.4	35.96	43.7	26.61	67.3					
26.0	44.85	33.6	51.77	38.7	32.13	37.6	35.98	40.7	26.63	64.5					
36.0	44.87	30.1	51.89	39.6	32.39	34.8	36.06	37.6	26.70	61.6					

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	σ Sagittarii.		50 Draconis.		γ Lyrae.		σ Octantis.		ζ Aquilæ.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 18 49	° ' -26 25	h m 18 49	° ' +75 18	h m 18 55	° ' +32 33	h 19	° ' -89 14	h m 19 0	° ' +13 42
	s 18 49	" -26 25	s 18 49	" +75 18	s 18 55	" +32 33	m s 19	" -89 14	s 19 0	" +13 42
Jan. 1.0	7.19	6.8	28.58	68.7	13.55	18.8	0 6.5	66.6	51.08	63.6
11.0	7.34	6.4	28.59	65.2	13.64	16.0	0 10.6	63.2	51.18	61.6
21.0	7.53	6.1	28.76	61.8	13.77	13.2	0 17.8	59.8	51.32	59.7
30.9	7.75	5.7	29.09	58.5	13.95	10.6	0 27.8	56.6	51.49	57.8
Feb. 9.9	8.00	5.4	29.58	55.5	14.16	8.2	0 40.3	53.7	51.69	56.2
19.9	8.27	5.0	30.19	53.0	14.40	6.2	0 54.9	51.2	51.91	54.8
Mar. 1.9	8.56	4.6	30.91	51.0	14.67	4.6	1 11.3	49.0	52.16	53.8
11.8	8.87	4.2	31.72	49.5	14.97	3.6	1 29.0	47.3	52.43	53.2
21.8	9.19	3.8	32.58	48.6	15.27	3.1	1 47.6	46.0	52.70	52.9
31.8	9.51	3.3	33.47	48.5	15.59	3.1	2 6.7	45.2	52.99	53.1
Apr. 10.7	9.83	2.8	34.36	48.9	15.90	3.7	2 25.9	44.9	53.28	53.7
20.7	10.15	2.2	35.22	50.1	16.22	4.8	2 44.8	45.1	53.56	54.8
30.7	10.47	1.7	36.02	51.7	16.52	6.5	3 2.9	45.7	53.85	56.1
May 10.7	10.77	1.2	36.73	53.9	16.81	8.5	3 20.0	46.8	54.12	57.8
20.6	11.06	0.8	37.34	56.6	17.07	10.9	3 35.7	48.3	54.37	59.7
30.6	11.32	0.5	37.84	59.6	17.31	13.6	3 49.6	50.2	54.61	61.8
June 9.6	11.56	0.3	38.19	62.9	17.51	16.4	4 1.4	52.5	54.81	64.0
19.6	11.76	0.1	38.41	66.3	17.68	19.4	4 10.8	55.1	54.98	66.3
29.5	11.91	0.1	38.48	69.8	17.80	22.4	4 17.6	57.9	55.12	68.6
July 9.5	12.03	0.2	38.40	73.3	17.87	25.3	4 21.6	60.8	55.22	70.7
19.5	12.10	0.4	38.18	76.7	17.89	28.1	4 22.7	63.8	55.27	72.8
29.4	12.12	0.6	37.82	79.9	17.87	30.8	4 20.7	66.8	55.28	74.7
Aug. 8.4	12.09	0.9	37.32	82.8	17.80	33.2	4 15.9	69.6	55.24	76.4
18.4	12.02	1.3	36.70	85.5	17.69	35.3	4 8.3	72.2	55.17	77.9
28.4	11.90	1.7	35.98	87.8	17.53	37.1	3 58.1	74.5	55.05	79.1
Sept. 7.3	11.75	2.0	35.17	89.6	17.35	38.5	3 45.6	76.4	54.91	80.0
17.3	11.58	2.3	34.30	91.0	17.13	39.5	3 31.4	77.8	54.74	80.7
27.3	11.39	2.5	33.38	91.9	16.91	40.1	3 15.9	78.6	54.56	81.1
Oct. 7.3	11.19	2.6	32.44	92.3	16.67	40.3	2 59.7	78.8	54.37	81.2
17.2	11.00	2.6	31.49	92.1	16.44	40.1	2 43.4	78.5	54.18	81.0
27.2	10.82	2.5	30.58	91.4	16.22	39.4	2 27.7	77.5	54.00	80.5
Nov. 6.2	10.67	2.4	29.72	90.2	16.02	38.3	2 13.2	75.9	53.85	79.7
16.1	10.56	2.1	28.94	88.4	15.85	36.8	2 0.5	73.8	53.72	78.6
26.1	10.49	1.8	28.26	86.2	15.73	34.9	1 50.2	71.2	53.63	77.2
Dec. 6.1	10.46	1.5	27.70	83.5	15.65	32.6	1 42.6	68.2	53.58	75.7
16.1	10.49	1.1	27.28	80.5	15.61	30.1	1 38.1	65.0	53.57	73.9
26.0	10.56	0.8	27.02	77.2	15.62	27.4	1 36.8	61.6	53.60	72.0
36.0	10.67	0.4	26.92	73.8	15.68	24.5	1 38.7	58.1	53.67	70.0

FIXED STARS, 1901.

383

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Lyrae.			δ Sagittarii.			δ Draconis.			θ Lyrae.			τ Draconis.		
	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion South.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.
	h m	s	°	h m	s	°	h m	s	°	h m	s	°	h m	s	°
	19 3	+	35 56	19 11	-	19 7	19 12	+	67 29	19 12	+	37 57	19 17	+	73 10
	s			s			s			s			s		
Jan 1.0	45.23	.08	47.6	50.21	.12	40.7	28.78	.01	23.6	54.92	.07	33.8	23.06	.07	28.2
11.0	45.31	.12	44.6	50.33	.15	40.8	28.77	.10	20.1	54.99	.11	30.8	22.99	.07	24.8
21.0	45.43	.17	41.7	50.48	.19	40.8	28.87	.20	16.7	55.10	.16	27.9	23.06	.22	21.3
30.9	45.60	.20	39.0	50.67	.21	40.8	29.07	.30	13.3	55.26	.20	25.1	23.28	.35	18.0
Feb. 9.9	45.80	.25	36.5	50.88	.24	40.7	29.37	.39	10.2	55.46	.23	22.5	23.63	.47	14.9
19.9	46.05	.27	34.4	51.12	.26	40.5	29.76	.47	7.5	55.69	.27	20.3	24.10	.59	12.1
Mar. 1.9	46.32	.29	32.7	51.38	.28	40.2	30.23	.53	5.3	55.96	.30	18.5	24.69	.67	9.7
11.8	46.61	.31	31.5	51.66	.29	39.9	30.76	.57	3.6	56.26	.31	17.2	25.36	.73	8.0
21.8	46.92	.33	30.9	51.95	.30	39.4	31.33	.60	2.5	56.57	.33	16.5	26.09	.77	6.8
31.8	47.25	.32	30.8	52.25	.31	38.8	31.93	.62	2.0	56.90	.33	16.3	26.86	.79	6.2
Apr. 10.8	47.57	.33	31.3	52.56	.31	38.1	32.55	.60	2.3	57.23	.33	16.8	27.65	.78	6.4
20.7	47.90	.31	32.4	52.87	.31	37.3	33.15	.58	3.1	57.56	.33	17.8	28.43	.74	7.1
30.7	48.21	.30	34.0	53.18	.30	36.5	33.73	.54	4.6	57.89	.31	19.3	29.17	.69	8.5
May 10.7	48.51	.28	36.0	53.48	.28	35.6	34.27	.47	6.7	58.20	.29	21.3	29.86	.61	10.5
20.6	48.79	.25	38.5	53.76	.26	34.8	34.74	.41	9.2	58.49	.26	23.7	30.47	.52	12.9
30.6	49.04	.21	41.2	54.02	.24	34.0	35.15	.33	12.1	58.75	.22	26.4	30.99	.41	15.7
June 9.6	49.25	.17	44.1	54.26	.21	33.2	35.48	.24	15.3	58.97	.18	29.4	31.40	.29	18.9
19.6	49.42	.13	47.2	54.47	.17	32.6	35.72	.14	18.8	59.15	.14	32.5	31.69	.17	22.3
29.5	49.55	.08	50.3	54.64	.13	32.0	35.86	.04	22.3	59.29	.09	35.7	31.86	.03	25.8
July 9.5	49.63	.03	53.3	54.77	.09	31.6	35.90	.05	25.9	59.38	.04	38.8	31.89	.09	29.4
19.5	49.66	.02	56.3	54.86	.04	31.3	35.85	.16	29.4	59.42	.02	41.9	31.80	.22	32.9
29.5	49.64	.07	59.1	54.90	.01	31.2	35.69	.25	32.8	59.40	.06	44.8	31.58	.35	36.3
Aug. 8.4	49.57	.11	61.6	54.89	.05	31.1	35.44	.33	36.0	59.34	.11	47.5	31.23	.45	39.5
18.4	49.46	.16	63.9	54.84	.09	31.1	35.11	.41	38.8	59.23	.16	49.9	30.78	.56	42.4
28.4	49.30	.20	65.9	54.75	.13	31.2	34.70	.48	41.4	59.07	.19	51.9	30.22	.65	45.0
Sept. 7.3	49.10	.22	67.4	54.62	.16	31.4	34.22	.53	43.5	58.88	.23	53.6	29.57	.71	47.3
17.3	48.88	.23	68.6	54.46	.17	31.6	33.69	.57	45.2	58.65	.24	54.9	28.86	.77	49.1
27.3	48.65	.25	69.3	54.29	.19	31.8	33.12	.59	46.4	58.41	.25	55.8	28.09	.80	50.4
Oct. 7.3	48.40	.25	69.6	54.10	.18	32.0	32.53	.60	47.1	58.16	.26	56.2	27.29	.81	51.2
17.2	48.15	.23	69.5	53.92	.17	32.1	31.93	.59	47.2	57.90	.24	56.1	26.48	.80	51.4
27.2	47.92	.21	68.9	53.75	.15	32.3	31.34	.56	46.8	57.66	.23	55.6	25.68	.77	51.2
Nov. 6.2	47.71	.19	67.8	53.60	.12	32.4	30.78	.50	45.9	57.43	.19	54.6	24.91	.71	50.3
16.2	47.52	.14	66.3	53.48	.08	32.4	30.28	.45	44.4	57.24	.16	53.2	24.20	.63	49.0
26.1	47.38	.10	64.4	53.40	.05	32.5	29.83	.38	42.4	57.08	.12	51.4	23.57	.54	47.1
Dec. 6.1	47.28	.06	62.2	53.35	.00	32.6	29.45	.28	39.9	56.96	.07	49.1	23.03	.43	44.7
16.1	47.22	.00	59.6	53.35	.05	32.6	29.17	.18	37.0	56.89	.02	46.6	22.60	.30	41.9
26.0	47.22	.04	56.8	53.40	.08	32.7	28.99	.08	33.8	56.87	.02	43.8	22.30	.16	38.8
36.0	47.26		53.9	53.48		32.7	28.91		30.4	56.91		40.8	22.14		35.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Aquilæ.		β Cygni.		κ Aquilæ.		β Sagittæ.		γ Aquilæ	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 19 20	° ' " + 2 55	h m 19 26	° ' " + 27 44	h m 19 31	° ' " - 7 14	h m 19 36	° ' " + 17 14	h m 19 41	° ' " + 10 22
Jan. 1.0	30.02	7.7	43.04	73.3	33.63	46.4	35.64	54.8	32.77	25.3
11.0	30.11	6.3	43.10	70.8	33.71	47.1	35.71	52.7	32.83	23.6
21.0	30.24	5.0	43.21	68.2	33.83	47.8	35.81	50.7	32.93	21.9
31.0	30.40	3.8	43.35	65.7	33.99	48.4	35.94	48.7	33.07	20.3
Feb. 9.9	30.59	2.7	43.53	63.5	34.17	48.9	36.11	46.9	33.23	18.9
19.9	30.80	1.8	43.74	61.6	34.38	49.3	36.31	45.4	33.43	17.7
Mar. 1.9	31.03	1.2	43.98	60.0	34.62	49.5	36.53	44.2	33.65	16.8
11.9	31.29	0.9	44.24	58.9	34.87	49.4	36.78	43.4	33.88	16.2
21.8	31.55	0.9	44.53	58.3	35.14	49.1	37.04	43.0	34.14	16.0
31.8	31.83	1.2	44.82	58.2	35.42	48.6	37.32	43.0	34.42	16.2
Apr. 10.8	32.12	1.8	45.13	58.6	35.71	47.9	37.61	43.5	34.70	16.8
20.7	32.41	2.8	45.44	59.6	36.00	46.9	37.91	44.5	34.99	17.7
30.7	32.70	4.0	45.74	61.0	36.29	45.8	38.20	45.8	35.28	19.0
May 10.7	32.98	5.5	46.04	62.8	36.58	44.6	38.49	47.5	35.57	20.5
20.7	33.24	7.1	46.32	65.0	36.86	43.2	38.77	49.4	35.85	22.4
30.6	33.49	8.8	46.58	67.5	37.12	41.8	39.02	51.6	36.10	24.4
June 9.6	33.72	10.6	46.81	70.2	37.36	40.4	39.26	54.0	36.34	26.5
19.6	33.91	12.4	47.00	73.0	37.57	39.1	39.46	56.4	36.55	28.6
29.6	34.07	14.2	47.15	75.8	37.75	37.8	39.63	58.9	36.72	30.8
July 9.5	34.19	15.9	47.27	78.7	37.89	36.7	39.75	61.3	36.86	32.9
19.5	34.27	17.5	47.33	81.4	37.98	35.6	39.84	63.6	36.95	34.9
29.5	34.31	18.9	47.35	84.0	38.04	34.7	39.88	65.8	37.00	36.8
Aug. 8.4	34.30	20.1	47.32	86.4	38.04	34.0	39.87	67.8	37.01	38.5
18.4	34.25	21.2	47.24	88.6	38.01	33.4	39.82	69.6	36.97	40.0
28.4	34.16	22.1	47.13	90.4	37.93	33.0	39.73	71.1	36.89	41.2
Sept. 7.4	34.04	22.7	46.98	91.9	37.82	32.8	39.60	72.3	36.77	42.2
17.3	33.89	23.2	46.79	93.1	37.68	32.6	39.45	73.3	36.63	43.0
27.3	33.73	23.4	46.59	94.0	37.52	32.6	39.27	73.9	36.46	43.5
Oct. 7.3	33.55	23.5	46.38	94.4	37.34	32.7	39.09	74.2	36.29	43.7
17.3	33.37	23.3	46.16	94.4	37.17	32.9	38.90	74.2	36.11	43.6
27.2	33.20	23.0	45.95	94.0	37.00	33.1	38.71	73.9	35.93	43.3
Nov. 6.2	33.05	22.4	45.76	93.2	36.85	33.5	38.54	73.3	35.77	42.8
16.2	32.93	21.7	45.60	92.0	36.73	34.0	38.39	72.3	35.63	41.9
26.1	32.84	20.8	45.46	90.5	36.63	34.5	38.28	71.0	35.52	40.9
Dec. 6.1	32.78	19.7	45.37	88.6	36.57	35.1	38.19	69.5	35.45	39.6
16.1	32.77	18.5	45.31	86.4	36.55	35.8	38.15	67.7	35.40	38.1
26.1	32.79	17.2	45.30	84.0	36.57	36.5	38.14	65.8	35.40	36.5
36.0	32.86	15.9	45.33	81.5	36.63	37.3	38.18	63.8	35.44	34.8

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

385

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Cygni.		α Aquilæ. (Altair.)		ϵ Draconis.		ϵ Pavonis.		β Aquilæ.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 19 41	° ' " +44 53	h m 19 45	° ' " + 8 36	h m 19 48	° ' " +70 0	h m 19 49	° ' " -73 9	h m 19 50	° ' " + 6 9
	s	"	s	"	s	"	s	"	s	"
Jan. 1.1	51.76	30.4 3.1	56.80	30.7 1.6	27.28	69.3 3.3	5.93	76.9 3.1	26.66	40.2 1.5
11.0	51.78	27.3 3.1	56.86	29.1 1.5	27.16	66.0 3.4	6.04	73.8 3.1	26.72	38.7 1.4
21.0	51.85	24.2 3.0	56.95	27.6 1.5	27.16	62.6 3.3	6.28	70.7 3.0	26.81	37.3 1.4
31.0	51.97	21.2 2.8	57.09	26.1 1.3	27.27	59.3 3.3	6.64	67.7 2.9	26.94	35.9 1.2
Feb. 9.9	52.15	18.4 2.6	57.25	24.8 1.1	27.51	56.0 3.0	7.12	64.8 2.8	27.10	34.7 1.0
19.9	52.37	15.8 2.1	57.44	23.7 0.9	27.85	53.0 2.6	7.71	62.0 2.5	27.28	33.7 0.7
Mar. 1.9	52.63	13.7 1.6	57.66	22.8 0.5	28.29	50.4 2.1	8.39	59.5 2.2	27.50	33.0 0.5
11.9	52.92	12.1 1.1	57.89	22.3 0.1	28.82	48.3 1.5	9.14	57.3 1.9	27.73	32.5 0.1
21.8	53.25	11.0 0.5	58.15	22.2 0.2	29.41	46.8 0.9	9.96	55.4 1.6	27.98	32.4 0.3
31.8	53.59	10.5 0.1	58.42	22.4 0.6	30.05	45.9 0.2	10.82	53.8 1.1	28.25	32.7 0.6
Apr. 10.8	53.95	10.6 0.8	58.71	23.0 0.9	30.73	45.7 0.4	11.71	52.7 0.7	28.53	33.3 0.9
20.8	54.32	11.4 1.3	59.00	23.9 1.3	31.41	46.1 1.0	12.61	52.0 0.4	28.82	34.2 1.3
30.7	54.68	12.7 1.8	59.29	25.2 1.6	32.08	47.1 1.6	13.52	51.6 0.1	29.11	35.5 1.5
May 10.7	55.03	14.5 2.3	59.58	26.8 1.8	32.71	48.7 2.2	14.40	51.7 0.6	29.40	37.0 1.7
20.7	55.36	16.8 2.6	59.86	28.6 1.9	33.30	50.9 2.6	15.25	52.3 0.9	29.68	38.7 1.8
30.6	55.66	19.4 3.0	60.12	30.5 2.1	33.82	53.5 3.0	16.04	53.2 1.3	29.95	40.5 2.0
June 9.6	55.93	22.4 3.2	60.36	32.6 2.1	34.26	56.5 3.3	16.75	54.5 1.7	30.19	42.5 2.0
19.6	56.15	25.6 3.3	60.58	34.7 2.1	34.60	59.8 3.5	17.38	56.2 2.0	30.41	44.5 2.0
29.6	56.33	28.9 3.4	60.75	36.8 2.1	34.84	63.3 3.6	17.90	58.2 2.3	30.59	46.5 1.9
July 9.5	56.45	32.3 3.3	60.90	38.9 1.9	34.98	66.9 3.6	18.30	60.5 2.4	30.74	48.4 1.8
19.5	56.51	35.6 3.2	60.99	40.8 1.8	35.00	70.5 3.5	18.56	62.9 2.5	30.84	50.2 1.7
29.5	56.52	38.8 3.0	61.05	42.6 1.6	34.92	74.0 3.4	18.69	65.4 2.6	30.90	51.9 1.4
Aug. 8.5	56.47	41.8 2.8	61.06	44.2 1.4	34.73	77.4 3.2	18.67	68.0 2.5	30.92	53.3 1.3
18.4	56.37	44.6 2.5	61.03	45.6 1.2	34.43	80.6 3.0	18.52	70.5 2.3	30.89	54.6 1.1
28.4	56.21	47.1 2.1	60.96	46.8 1.0	34.04	83.6 2.6	18.23	72.8 2.1	30.82	55.7 0.8
Sept. 7.4	56.02	49.2 1.7	60.85	47.8 0.7	33.57	86.2 2.1	17.82	74.9 1.7	30.72	56.5 0.6
17.3	55.78	50.9 1.3	60.71	48.5 0.5	33.02	88.3 1.8	17.30	76.6 1.4	30.59	57.1 0.4
27.3	55.52	52.2 0.9	60.55	49.0 0.2	32.43	90.1 1.2	16.70	78.0 0.9	30.43	57.5 0.2
Oct. 7.3	55.24	53.1 0.3	60.38	49.2 0.0	31.79	91.3 0.7	16.05	78.9 0.4	30.26	57.7 0.1
17.3	54.95	53.4 0.2	60.20	49.2 0.3	31.13	92.0 0.2	15.37	79.3 0.2	30.08	57.6 0.3
27.2	54.67	53.2 0.6	60.03	48.9 0.6	30.47	92.2 0.4	14.69	79.1 0.7	29.91	57.3 0.5
Nov. 6.2	54.41	52.6 1.2	59.87	48.3 0.7	29.82	91.8 1.0	14.04	78.4 1.2	29.75	56.8 0.7
16.2	54.16	51.4 1.6	59.73	47.6 1.0	29.21	90.8 1.5	13.46	77.2 1.7	29.61	56.1 1.0
26.2	53.95	49.8 2.1	59.62	46.6 1.2	28.65	89.3 2.0	12.97	75.5 2.1	29.50	55.1 1.1
Dec. 6.1	53.78	47.7 2.4	59.55	45.4 1.4	28.16	87.3 2.5	12.58	73.4 2.5	29.43	54.0 1.2
16.1	53.66	45.3 2.8	59.50	44.0 1.5	27.75	84.8 2.9	12.32	70.9 2.8	29.38	52.8 1.4
26.1	53.59	42.5 3.0	59.50	42.5 1.5	27.45	81.9 3.1	12.19	68.1 2.9	29.38	51.4 1.5
36.0	53.57	39.5	59.54	41.0	27.25	78.8	12.21	65.2	29.41	49.9

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Sagittæ.		ϵ Sagittarii.		τ Aquilæ.		θ Aquilæ.		ζ Cygni.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 19 54	° ' +19 13	h m 19 56	° ' -27 58	h m 19 59	° ' + 6 59	h m 20 6	° ' - 1 6	h m 20 10	° ' +46 26
	s	"	s	"	s	"	s	"	s	"
Jan. 1.1	20.78	31.3	33.92	63.7	17.89	61.8	11.53	48.9	29.86	39.7
	.04	2.1	.07	0.6	.05	1.5	.05	1.0	.03	2.9
11.0	20.82	29.2	33.99	63.1	17.94	60.3	11.58	49.9	29.83	36.8
	.08	2.1	.11	0.7	.08	1.4	.08	1.0	.03	3.1
21.0	20.90	27.1	34.10	62.4	18.02	58.9	11.66	50.9	29.86	33.7
	.12	2.0	.15	0.8	.12	1.4	.12	0.9	.08	3.0
31.0	21.02	25.1	34.25	61.6	18.14	57.5	11.78	51.8	29.94	30.7
	.15	1.9	.19	0.8	.15	1.2	.15	0.7	.14	3.0
Feb. 10.0	21.17	23.2	34.44	60.8	18.29	56.3	11.93	52.5	30.08	27.7
	.18	1.6	.21	0.8	.18	1.1	.17	0.6	.19	2.6
19.9	21.35	21.6	34.65	60.0	18.47	55.2	12.10	53.1	30.27	25.1
	.21	1.3	.24	0.9	.20	0.7	.20	0.4	.23	2.4
Mar. 1.9	21.56	20.3	34.89	59.1	18.67	54.5	12.30	53.5	30.50	22.7
	.24	0.9	.27	1.0	.23	0.5	.23	0.1	.27	1.8
11.9	21.80	19.4	35.16	58.1	18.90	54.0	12.53	53.6	30.77	20.9
	.26	0.5	.29	1.1	.25	0.1	.24	0.2	.32	1.4
21.8	22.06	18.9	35.45	57.0	19.15	53.9	12.77	53.4	31.09	19.5
	.27	0.1	.30	1.0	.27	0.2	.27	0.4	.34	0.7
31.8	22.33	18.8	35.75	56.0	19.42	54.1	13.04	53.0	31.43	18.8
	.29	0.5	.32	1.1	.28	0.6	.28	0.8	.35	0.2
Apr. 10.8	22.62	19.3	36.07	54.9	19.70	54.7	13.32	52.2	31.78	18.6
	.30	0.8	.33	1.1	.29	1.0	.28	1.0	.38	0.4
20.8	22.92	20.1	36.40	53.8	19.99	55.7	13.60	51.2	32.16	19.0
	.30	1.3	.33	1.0	.29	1.2	.30	1.2	.37	1.1
30.7	23.22	21.4	36.73	52.8	20.28	56.9	13.90	50.0	32.53	20.1
	.29	1.6	.33	0.9	.29	1.5	.29	1.4	.38	1.5
May 10.7	23.51	23.0	37.06	51.9	20.57	58.4	14.19	48.6	32.91	21.6
	.29	2.0	.32	0.9	.28	1.8	.29	1.6	.35	2.1
20.7	23.80	25.0	37.38	51.0	20.85	60.2	14.48	47.0	33.26	23.7
	.27	2.2	.31	0.7	.27	1.9	.27	1.7	.34	2.5
30.7	24.07	27.2	37.69	50.3	21.12	62.1	14.75	45.3	33.60	26.2
	.24	2.4	.29	0.6	.25	2.0	.26	1.8	.29	2.8
June 9.6	24.31	29.6	37.98	49.7	21.37	64.1	15.01	43.5	33.89	29.0
	.22	2.5	.26	0.4	.22	2.1	.23	1.7	.26	3.1
19.6	24.53	32.1	38.24	49.3	21.59	66.2	15.24	41.8	34.15	32.1
	.18	2.6	.22	0.3	.19	2.0	.20	1.7	.22	3.3
29.6	24.71	34.7	38.46	49.0	21.78	68.2	15.44	40.1	34.37	35.4
	.15	2.5	.18	0.0	.16	2.0	.17	1.6	.16	3.4
July 9.5	24.86	37.2	38.64	49.0	21.94	70.2	15.61	38.5	34.53	38.8
	.10	2.5	.14	0.1	.11	1.9	.12	1.4	.10	3.4
19.5	24.96	39.7	38.78	49.1	22.05	72.1	15.73	37.1	34.63	42.2
	.05	2.3	.09	0.2	.07	1.7	.08	1.3	.04	3.4
29.5	25.01	42.0	38.87	49.3	22.12	73.8	15.81	35.8	34.67	45.6
	.01	2.2	.03	0.5	.02	1.6	.04	1.2	.01	3.2
Aug. 8.5	25.02	44.2	38.90	49.8	22.14	75.4	15.85	34.6	34.66	48.8
	.03	1.9	.01	0.5	.02	1.3	.01	0.9	.08	3.0
18.4	24.99	46.1	38.89	50.3	22.12	76.7	15.84	33.7	34.58	51.8
	.08	1.7	.06	0.6	.06	1.2	.05	0.8	.12	2.7
28.4	24.91	47.8	38.83	50.9	22.06	77.9	15.79	32.9	34.46	54.5
	.12	1.4	.10	0.6	.10	0.9	.09	0.6	.17	2.4
Sept 7.4	24.79	49.2	38.73	51.5	21.96	78.8	15.70	32.3	34.29	56.9
	.14	1.1	.14	0.7	.13	0.7	.12	0.3	.22	2.0
17.4	24.65	50.3	38.59	52.2	21.83	79.5	15.58	32.0	34.07	58.9
	.17	0.8	.17	0.6	.15	0.4	.15	0.2	.25	1.7
27.3	24.48	51.1	38.42	52.8	21.68	79.9	15.43	31.8	33.82	60.6
	.19	0.4	.19	0.5	.17	0.3	.16	0.1	.27	1.1
Oct. 7.3	24.29	51.5	38.23	53.3	21.51	80.2	15.27	31.7	33.55	61.7
	.19	0.2	.19	0.4	.17	0.1	.17	0.1	.28	0.7
17.3	24.10	51.7	38.04	53.7	21.34	80.1	15.10	31.8	33.27	62.4
	.19	0.2	.19	0.2	.17	0.2	.16	0.3	.29	0.2
27.2	23.91	51.5	37.85	53.9	21.17	79.9	14.94	32.1	32.98	62.6
	.17	0.6	.18	0.1	.16	0.5	.16	0.4	.28	0.3
Nov. 6.2	23.74	50.9	37.67	54.0	21.01	79.4	14.78	32.5	32.70	62.3
	.16	0.9	.15	0.0	.15	0.7	.14	0.6	.26	0.8
16.2	23.58	50.0	37.52	54.0	20.86	78.7	14.64	33.1	32.44	61.5
	.13	1.2	.12	0.1	.11	0.9	.11	0.7	.24	1.3
26.2	23.45	48.8	37.40	53.9	20.75	77.8	14.53	33.8	32.20	60.2
	.10	1.5	.08	0.3	.08	1.1	.09	0.8	.20	1.8
Dec. 6.1	23.35	47.3	37.32	53.6	20.67	76.7	14.44	34.6	32.00	58.4
	.06	1.7	.05	0.3	.05	1.3	.04	0.9	.15	2.3
16.1	23.29	45.6	37.27	53.3	20.62	75.4	14.40	35.5	31.85	56.1
	.02	1.9	.00	0.5	.02	1.4	.02	1.0	.11	2.6
26.1	23.27	43.7	37.27	52.8	20.60	74.0	14.38	36.5	31.74	53.5
	.02	2.1	.05	0.5	.03	1.4	.03	1.0	.06	2.8
36.1	23.29	41.6	37.32	52.3	20.63	72.6	14.41	37.5	31.68	50.7

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

387

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	κ Cephei (<i>pr.</i>).			α^3 Capricorni.			α Pavonis.			γ Cygni.			π Capricorni.		
	Right Ascension.		Declination North.	Right Ascension.		Declination South.	Right Ascension.		Declination South.	Right Ascension.		Declination North.	Right Ascension.		Declination South.
	h	m	°	h	m	°	h	m	°	h	m	°	h	m	°
	20	12	+77 24	20	12	-12 50	20	17	-57 2	20	18	+39 56	20	21	-18 31
	s	"		s	"		s	"		s	"		s	"	
Jan. 1.1	8.31		63.3	33.47		62.1	47.97		68.8	39.73		34.8	39.03		67.1
11.0	7.96	.35	60.2 3.1	33.51	.04	62.4 0.3	48.01	.04	66.5 2.3	39.72	.01	32.0 2.8	39.08	.05	67.0 0.1
21.0	7.79	.17	56.9 3.3	33.60	.09	62.6 0.2	48.12	.11	64.1 2.4	39.75	.03	29.1 2.9	39.15	.07	66.9 0.1
31.0	7.82	.03	53.6 3.3	33.72	.12	62.8 0.2	48.29	.17	61.6 2.5	39.83	.08	26.3 2.8	39.27	.12	66.7 0.2
Feb. 10.0	8.03	.21	50.3 3.3	33.87	.15	62.8 0.0	48.52	.23	59.2 2.4	39.95	.12	23.6 2.7	39.41	.14	66.3 0.4
		.40	3.1		.18	0.1		.30			.17	2.5		.18	0.4
19.9	8.43		47.2 2.8	34.05		62.7 0.2	48.82		56.8 2.4	40.12		21.1 2.2	39.59		65.9 0.6
Mar. 1.9	9.00	.57	44.4 2.4	34.25	.20	62.5 0.4	49.15	.33	54.4 2.1	40.33	.21	18.9 2.2	39.79	.20	65.3 0.7
11.9	9.72	.72	42.0 1.8	34.48	.23	62.1 0.6	49.54	.39	52.3 2.0	40.57	.24	17.2 1.7	40.02	.23	64.6 0.9
21.9	10.57	.85	40.2 1.3	34.73	.25	61.5 0.8	49.96	.42	50.3 1.8	40.86	.29	15.9 0.7	40.27	.25	63.7 1.0
31.8	11.50	0.93	38.9 0.6	35.00	.27	60.7 1.0	50.41	.45	48.5 1.6	41.16	.30	15.2 0.1	40.55	.28	62.7 1.1
		1.00			.29			.48			.33	0.1		.28	
Apr. 10.8	12.50	1.03	38.3 0.0	35.29	.29	59.7 1.1	50.89	.49	46.9 1.2	41.49	.34	15.1 0.5	40.83	.31	61.6 1.2
20.8	13.53	1.03	38.3 0.6	35.58	.30	58.6 1.2	51.38	.51	45.7 1.0	41.83	.35	15.6 1.0	41.14	.31	60.4 1.2
30.7	14.56	0.99	38.9 1.3	35.88	.31	57.4 1.3	51.89	.50	44.7 0.6	42.18	.35	16.6 1.5	41.45	.31	59.2 1.3
May 10.7	15.55	.91	40.2 1.8	36.19	.30	56.1 1.4	52.39	.50	44.1 0.3	42.53	.33	18.1 2.1	41.76	.31	57.9 1.3
20.7	16.46	.83	42.0 2.3	36.49	.29	54.7 1.3	52.89	.47	43.8 0.1	42.86	.32	20.2 2.4	42.07	.30	56.6 1.2
30.7	17.29	.71	44.3 2.7	36.78	.27	53.4 1.3	53.36	.45	43.9 0.4	43.18	.29	22.6 2.7	42.37	.28	55.4 1.1
June 9.6	18.00	.57	47.0 3.0	37.05	.24	52.1 1.3	53.81	.41	44.3 0.8	43.47	.25	25.3 3.0	42.65	.26	54.3 1.0
19.6	18.57	.41	50.0 3.4	37.29	.22	50.8 1.1	54.22	.35	45.1 1.1	43.72	.22	28.3 3.1	42.91	.24	53.3 0.9
29.6	18.98	.25	53.4 3.5	37.51	.18	49.7 1.0	54.57	.29	46.2 1.4	43.94	.17	31.4 3.3	43.15	.19	52.4 0.7
July 9.6	19.23	.09	56.9 3.6	37.69	.14	48.7 0.8	54.86	.22	47.6 1.6	44.11	.11	34.7 3.2	43.34	.15	51.7 0.5
19.5	19.32	.08	60.5 3.6	37.83	.09	47.9 0.6	55.08	.15	49.2 1.8	44.22	.06	37.9 3.2	43.49	.10	51.2 0.3
29.5	19.24	.25	64.1 3.5	37.92	.05	47.3 0.5	55.23	.06	51.0 1.9	44.28	.01	41.1 3.1	43.59	.06	50.9 0.2
Aug. 8.5	18.99	.41	67.6 3.4	37.97	.00	46.8 0.3	55.29	.01	52.9 2.0	44.29	.04	44.2 2.8	43.65	.01	50.7 0.0
18.4	18.58	.56	71.0 3.2	37.97	.04	46.5 0.2	55.28	.08	54.9 2.0	44.25	.10	47.0 2.6	43.66	.03	50.7 0.2
28.4	18.02	.69	74.2 2.8	37.93	.09	46.3 0.0	55.20	.17	56.9 1.9	44.15	.14	49.6 2.3	43.63	.08	50.9 0.2
Sept. 7.4	17.33	.81	77.0 2.6	37.84	.11	46.3 0.1	55.03	.22	58.8 1.7	44.01	.17	51.9 1.9	43.55	.11	51.1 0.3
17.4	16.52	.91	79.6 2.1	37.73	.15	46.4 0.2	54.81	.27	60.5 1.4	43.84	.21	53.8 1.6	43.44	.14	51.4 0.4
27.3	15.61	0.99	81.7 1.7	37.58	.16	46.6 0.2	54.54	.31	61.9 1.1	43.63	.24	55.4 1.1	43.30	.17	51.8 0.5
Oct. 7.3	14.62	1.03	83.4 1.1	37.42	.17	46.8 0.3	54.23	.34	63.0 0.8	43.39	.24	56.5 0.7	43.13	.17	52.3 0.4
17.3	13.59	1.06	84.5 0.7	37.25	.17	47.1 0.4	53.89	.33	63.8 0.3	43.15	.25	57.2 0.2	42.96	.17	52.7 0.4
27.3	12.53	1.06	85.2 0.0	37.08	.16	47.5 0.3	53.56	.33	64.1 0.1	42.90	.24	57.4 0.3	42.79	.17	53.1 0.3
Nov. 6.2	11.47	1.03	85.2 0.5	36.92	.14	47.8 0.4	53.23	.30	64.0 0.5	42.66	.23	57.1 0.8	42.62	.15	53.4 0.3
16.2	10.44	0.96	84.7 1.0	36.78	.12	48.2 0.4	52.93	.25	63.5 0.9	42.43	.20	56.3 1.2	42.47	.12	53.7 0.3
26.2	9.48	.88	83.7 1.7	36.66	.08	48.6 0.3	52.68	.20	62.6 1.3	42.23	.17	55.1 1.7	42.35	.09	54.0 0.2
Dec. 6.1	8.60	.76	82.0 2.1	36.58	.05	48.9 0.4	52.48	.15	61.3 1.7	42.06	.13	53.4 2.0	42.26	.06	54.2 0.1
16.1	7.84	.63	79.9 2.6	36.53	.01	49.3 0.4	52.33	.07	59.6 1.9	41.93	.09	51.4 2.4	42.20	.02	54.3 0.1
26.1	7.21	.46	77.3 2.9	36.52	.02	49.7 0.3	52.26	.01	57.7 2.1	41.84	.05	49.0 2.7	42.18	.02	54.4 0.0
36.1	6.75		74.4	36.54		50.0	52.25		55.6	41.79		46.3	42.20		54.4

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ϵ Delphini.		Groombridge 3241.		α Delphini.		β Pavonis.		α Cygni.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.
	h m 20 28	° ' +10 57	h m 20 30	° ' +72 11	h m 20 35	° ' +15 33	h m 20 36	° ' -66 33	h m 20 38	° ' +44 55
	s 20 28	" +10 57	s 20 30	" +72 11	s 20 35	" +15 33	s 20 36	" -66 33	s 20 38	" +44 55
Jan. 1.1	28.72 .02	67.9 1.5	22.92 .26	63.0 3.0	2.09 .01	55.2 1.8	0.70 .02	34.4 2.7	2.59 .05	49.0 2.7
11.1	28.74 .05	66.4 1.6	22.66 .14	60.0 3.2	2.10 .04	53.4 1.8	0.68 .07	31.7 2.9	2.54 .00	46.3 2.9
21.0	28.79 .09	64.8 1.6	22.52 .01	56.8 3.4	2.14 .08	51.6 1.7	0.75 .16	28.8 3.0	2.54 .04	43.4 3.0
31.0	28.88 .12	63.2 1.4	22.51 .12	53.4 3.3	2.22 .11	49.9 1.7	0.91 .25	25.8 2.9	2.58 .10	40.4 2.9
Feb. 10.0	29.00 .15	61.8 1.2	22.63 .25	50.1 3.2	2.33 .15	48.2 1.4	1.16 .33	22.9 2.9	2.68 .15	37.5 2.7
19.9	29.15 .18	60.6 0.9	22.88 .38	46.9 2.9	2.48 .17	46.8 1.2	1.49 .41	20.0 2.8	2.83 .20	34.8 2.4
Mar. 1.9	29.33 .20	59.7 0.7	23.26 .49	44.0 2.4	2.65 .20	45.6 0.9	1.90 .46	17.2 2.7	3.03 .24	32.4 2.0
11.9	29.53 .24	58.0 0.3	23.75 .58	41.6 2.0	2.85 .23	44.7 0.4	2.36 .53	14.5 2.4	3.27 .28	30.4 1.8
21.9	29.77 .25	56.7 0.1	24.33 .66	39.6 1.5	3.08 .26	44.3 0.1	2.89 .57	12.1 2.1	3.55 .32	28.9 1.0
31.8	30.02 .27	58.8 0.5	24.99 .72	38.1 0.8	3.34 .27	44.2 0.4	3.46 .62	10.0 1.8	3.87 .34	27.9 0.4
Apr. 10.8	30.29 .29	59.3 0.9	25.71 .74	37.3 0.2	3.61 .29	44.6 0.7	4.08 .64	8.2 1.5	4.21 .36	27.5 0.2
20.8	30.58 .29	60.2 1.2	26.45 .76	37.1 0.5	3.90 .29	45.3 1.2	4.72 .66	6.7 1.1	4.57 .37	27.7 0.8
30.8	30.87 .30	61.4 1.5	27.21 .74	37.6 1.1	4.19 .30	46.5 1.5	5.38 .66	5.6 0.7	4.94 .37	28.5 1.4
May 10.7	31.17 .29	62.9 1.8	27.95 .71	38.7 1.6	4.49 .30	48.0 1.8	6.04 .66	4.9 0.3	5.31 .37	29.9 1.8
20.7	31.46 .28	64.7 2.0	28.66 .68	40.3 2.2	4.79 .29	49.8 2.1	6.70 .65	4.6 0.1	5.68 .34	31.7 2.5
30.7	31.74 .27	66.7 2.1	29.31 .58	42.5 2.7	5.08 .27	51.9 2.2	7.33 .60	4.7 0.6	6.02 .32	34.0 2.7
June 9.6	32.01 .24	68.8 2.2	29.89 .48	45.2 3.0	5.35 .25	54.1 2.4	7.93 .55	5.3 0.9	6.34 .29	36.7 2.0
19.6	32.25 .22	71.0 2.3	30.37 .38	48.2 3.3	5.60 .22	56.5 2.4	8.48 .48	6.2 1.4	6.63 .24	38.6 3.2
29.6	32.47 .17	73.3 2.2	30.75 .27	51.5 3.5	5.82 .18	58.9 2.5	8.96 .40	7.6 1.6	6.87 .19	42.8 3.3
July 9.6	32.64 .14	75.5 2.2	31.02 .15	55.0 3.6	6.00 .14	61.4 2.5	9.36 .32	0.2 2.0	7.06 .15	46.1 3.4
19.5	32.78 .10	77.7 2.0	31.17 .03	58.6 3.7	6.14 .10	63.7 2.3	9.68 .21	11.2 2.2	7.21 .08	49.5 3.4
29.5	32.88 .05	79.7 1.8	31.20 .10	62.3 3.6	6.24 .05	66.0 2.1	9.89 .11	13.4 2.3	7.29 .05	52.9 3.2
Aug. 8.5	32.93 .00	81.5 1.7	31.10 .21	65.9 3.5	6.29 .01	68.1 1.9	10.00 .00	15.7 2.4	7.32 .03	56.1 3.1
18.5	32.93 .04	83.2 1.4	30.89 .32	69.4 3.3	6.30 .04	70.0 1.6	10.00 .10	18.1 2.4	7.29 .09	59.2 2.9
28.4	32.89 .08	84.6 1.2	30.57 .13	72.7 3.0	6.26 .08	71.6 1.4	9.90 .20	20.5 2.2	7.20 .13	62.1 2.6
Sept. 7.4	32.81 .11	85.8 0.9	30.14 .51	75.7 2.7	6.18 .11	73.0 1.2	9.70 .29	22.7 2.1	7.07 .18	64.7 2.2
17.4	32.70 .14	86.7 0.7	29.63 .59	78.4 2.3	6.07 .14	74.2 0.8	9.41 .37	24.8 1.8	6.80 .22	66.9 1.8
27.3	32.56 .16	87.4 0.4	29.04 .66	80.7 1.9	5.93 .16	75.0 0.6	9.04 .42	26.6 1.4	6.67 .24	68.7 1.5
Oct. 7.3	32.40 .17	87.8 0.1	28.38 .69	82.6 1.4	5.77 .17	75.6 0.3	8.62 .46	28.0 1.0	6.43 .26	70.2 1.0
17.3	32.23 .17	87.9 0.1	27.69 .73	84.0 0.8	5.60 .18	75.9 0.0	8.16 .48	29.0 0.5	6.17 .26	71.2 0.4
27.3	32.06 .17	87.8 0.4	26.96 .72	84.8 0.3	5.42 .17	75.9 0.4	7.68 .47	29.5 0.0	5.91 .27	71.6 0.0
Nov. 6.2	31.89 .15	87.4 0.6	26.24 .71	85.1 0.3	5.25 .16	75.5 0.6	7.21 .45	29.5 0.5	5.64 .25	71.6 0.5
16.2	31.74 .13	86.8 0.9	25.53 .67	84.8 0.9	5.09 .13	74.9 0.9	6.76 .40	29.0 1.0	5.39 .24	71.1 1.0
26.2	31.61 .10	85.9 1.1	24.86 .62	83.9 1.5	4.96 .12	74.0 1.2	6.36 .34	28.0 1.5	5.15 .20	70.1 1.5
Dec. 6.2	31.51 .07	84.8 1.3	24.24 .54	82.4 1.9	4.84 .08	72.8 1.4	6.02 .26	26.5 1.9	4.95 .17	68.6 1.9
16.1	31.44 .04	83.5 1.5	23.70 .45	80.5 2.5	4.76 .05	71.4 1.6	5.76 .17	24.6 2.3	4.78 .13	66.7 2.4
26.1	31.40 .01	82.0 1.5	23.25 .34	78.0 2.9	4.71 .01	69.8 1.7	5.59 .09	22.3 2.5	4.65 .09	64.3 2.0
36.1	31.39	80.5	22.91	75.1	4.70	68.1	5.50	19.8	4.56	61.7

FIXED STARS, 1901.

(CONSTANTS OF STRUVE AND PETERS.)

389

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ψ Capricorni.		ϵ Cygni.		μ Aquarii.		12 Year Cat. 1879.		ν Cygni.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m 20 40	° ' -25 37	h m 20 42	° ' +33 35	h m 20 47	° ' - 9 20	h m 20 51	° ' +80 10	h m 20 53	° ' +40 47
	s	"	s	"	s	"	s	"	s	"
Jan. 1.1	13.83	33.6	11.82	69.9	18.70	73.2	59.34	71.0	28.33	23.1
11.1	13.86	33.1	11.80	67.4	18.71	73.6	58.67	68.2	28.27	20.5
21.1	13.92	32.5	11.82	64.9	18.76	74.0	58.23	65.2	28.26	17.8
31.0	14.02	31.8	11.87	62.3	18.84	74.3	58.02	61.9	28.29	15.0
Feb. 10.0	14.15	31.0	11.97	59.8	18.95	74.5	58.06	58.6	28.37	12.3
20.0	14.31	30.1	12.11	57.5	19.10	74.5	58.34	55.4	28.50	9.7
Mar. 1.9	14.51	29.0	12.28	55.5	19.26	74.3	58.85	52.4	28.67	7.4
11.9	14.73	27.9	12.50	53.9	19.46	74.0	59.58	49.7	28.89	5.5
21.9	14.98	26.7	12.75	52.8	19.69	73.4	60.50	47.4	29.14	4.0
31.9	15.25	25.4	13.02	52.1	19.93	72.6	61.58	45.6	29.43	3.0
Apr. 10.8	15.54	24.1	13.32	52.0	20.20	71.6	62.77	44.4	29.74	2.6
20.8	15.86	22.7	13.64	52.4	20.48	70.4	64.04	43.9	30.08	2.7
30.8	16.18	21.3	13.97	53.3	20.78	69.0	65.34	43.9	30.43	3.4
May 10.7	16.50	20.0	14.30	54.7	21.08	67.6	66.64	44.6	30.79	4.7
20.7	16.83	18.7	14.63	56.5	21.38	66.0	67.88	45.9	31.14	6.4
30.7	17.15	17.6	14.94	58.8	21.68	64.4	69.03	47.7	31.48	8.6
June 9.7	17.46	16.6	15.24	61.3	21.97	62.8	70.05	50.0	31.80	11.1
19.6	17.74	15.8	15.50	64.1	22.23	61.3	70.93	52.8	32.09	14.0
29.6	18.00	15.2	15.74	67.1	22.47	59.9	71.64	55.8	32.34	17.0
July 9.6	18.22	14.9	15.93	70.2	22.67	58.7	72.15	59.2	32.55	20.2
19.6	18.39	14.7	16.07	73.3	22.84	57.5	72.46	62.7	32.71	23.5
29.5	18.52	14.7	16.17	76.3	22.96	56.6	72.56	66.3	32.82	26.8
Aug. 8.5	18.60	15.0	16.22	79.2	23.04	55.9	72.46	70.0	32.87	29.9
18.5	18.63	15.4	16.21	81.9	23.07	55.3	72.14	73.6	32.87	33.0
28.5	18.61	15.9	16.16	84.4	23.06	55.0	71.63	77.0	32.82	35.8
Sept. 7.4	18.55	16.6	16.06	86.6	23.01	54.8	70.93	80.3	32.71	38.3
17.4	18.44	17.3	15.93	88.5	22.92	54.7	70.06	83.2	32.57	40.5
27.4	18.30	18.0	15.76	90.1	22.80	54.8	69.05	85.9	32.39	42.4
Oct. 7.3	18.14	18.7	15.57	91.3	22.65	55.1	67.92	88.1	32.18	43.9
17.3	17.97	19.3	15.36	92.0	22.50	55.4	66.68	89.9	31.95	44.9
27.3	17.78	19.8	15.15	92.4	22.33	55.8	65.38	91.2	31.71	45.5
Nov. 6.3	17.61	20.2	14.93	92.3	22.18	56.2	64.05	91.9	31.47	45.6
16.2	17.45	20.5	14.73	91.7	22.03	56.7	62.71	91.9	31.24	45.2
26.2	17.31	20.6	14.55	90.7	21.90	57.2	61.41	91.6	31.02	44.3
Dec. 6.2	17.20	20.6	14.40	89.4	21.80	57.7	60.19	90.6	30.83	43.0
16.1	17.12	20.5	14.27	87.6	21.73	58.2	59.07	89.1	30.67	41.2
26.1	17.08	20.2	14.18	85.5	21.69	58.7	58.10	87.0	30.55	39.1
36.1	17.08	19.8	14.13	83.2	21.68	59.2	57.30	84.4	30.46	36.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	61 Cygni.			ζ Cygni.			τ Cygni.			α Cephei.			ι Pegasi.		
	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.	Right Ascension.		Declina- tion North.
	h m	s	° ' "	h m	s	° ' "	h m	s	° ' "	h m	s	° ' "	h m	s	° ' "
	21 2		+38 15	21 1		+29 49	21 10		+37 37	21 16		+62 9	21 17		+19 22
Jan. 1.1	27.02		58.8	43.04		27.3	49.92		36.1	11.73		76.5	30.32		61.8
11.1	26.97	.05	56.5 2.3	43.00	.04	25.1 2.2	49.85	.07	33.7 2.4	11.52	.21	73.8 2.7	30.29	.03	60.1 1.7
21.1	26.97	.00	54.0 2.5	42.99	.01	22.8 2.3	49.83	.02	31.2 2.5	11.39	.13	70.8 3.0	30.29	.00	58.2 1.9
31.0	27.01	.04	51.4 2.6	43.02	.03	20.5 2.3	49.85	.02	28.6 2.6	11.33	.06	67.7 3.1	30.32	.03	56.4 1.8
Feb. 10.0	27.09	.08	48.8 2.6	43.09	.07	18.2 2.3	49.91	.06	26.0 2.6	11.35	.02	64.4 3.3	30.39	.07	54.6 1.8
		.12			.11			.11			.11			.10	
20.0	27.21		46.4 2.1	43.20		16.1 1.9	50.02		23.5 2.2	11.46		61.3 3.0	30.49		53.0 1.4
Mar. 2.0	27.38	.17	44.3 1.8	43.34	.14	14.2 1.6	50.16	.14	21.3 1.9	11.64	.18	58.3 2.6	30.62	.13	51.6 1.1
11.9	27.59	.21	42.5 1.4	43.52	.18	12.6 1.1	50.36	.20	19.4 1.4	11.91	.27	55.7 2.3	30.79	.17	50.5 0.7
21.9	27.84	.25	41.1 0.8	43.74	.22	11.5 0.7	50.59	.23	18.0 1.0	12.24	.33	53.4 1.7	30.99	.20	49.8 0.3
31.9	28.12	.31	40.3 0.4	43.99	.28	10.8 0.3	50.85	.26	17.0 0.4	12.64	.40	51.7 1.2	31.22	.23	49.5 0.1
								.29			.46			.25	
Apr. 10.8	28.43		39.9 0.2	44.27		10.5 0.3	51.14		16.6 0.1	13.10		50.5 0.5	31.47		49.6 0.5
20.8	28.76	.33	40.1 0.8	44.57	.30	10.8 0.8	51.46	.32	16.7 0.6	13.59	.49	50.0 0.1	31.75	.28	50.1 0.9
30.8	29.11	.35	40.9 1.3	44.88	.31	11.6 1.3	51.80	.34	17.3 1.1	14.11	.52	50.1 0.6	32.05	.30	51.0 1.4
May 10.8	29.47	.36	42.2 1.8	45.20	.32	12.9 1.7	52.15	.35	18.4 1.7	14.64	.53	50.7 1.3	32.35	.30	52.4 1.7
20.7	29.83	.36	44.0 2.2	45.53	.33	14.6 2.0	52.50	.35	20.1 2.1	15.16	.52	52.0 1.8	32.66	.31	54.1 2.0
		.34			.32			.34			.50			.31	
30.7	30.17		46.2 2.5	45.85		16.6 2.4	52.84		22.2 2.4	15.66		53.8 2.4	32.97		56.1 2.2
June 9.7	30.50	.33	48.7 2.9	46.15	.30	19.0 2.6	53.16	.32	24.6 2.7	16.14	.48	56.2 2.7	33.27	.30	58.3 2.4
19.7	30.80	.30	51.6 3.1	46.44	.29	21.6 2.8	53.45	.29	27.3 3.0	16.57	.43	58.9 3.1	33.54	.27	60.7 2.6
29.6	31.07	.27	54.7 3.2	46.69	.25	24.4 2.9	53.72	.27	30.3 3.1	16.94	.37	62.0 3.3	33.79	.25	63.3 2.5
July 9.6	31.30	.23	57.9 3.3	46.90	.21	27.3 3.0	53.94	.22	33.4 3.2	17.24	.30	65.3 3.6	34.01	.22	65.8 2.6
		.18			.17			.18			.23			.18	
19.6	31.48		61.2 3.3	47.07		30.3 2.9	54.12		36.6 3.1	17.47		68.9 3.6	34.19		68.4 2.5
29.5	31.60	.12	64.5 3.1	47.20	.13	33.2 2.8	54.25	.13	39.7 3.1	17.62	.15	72.5 3.7	34.33	.14	70.9 2.3
Aug. 8.5	31.68	.08	67.6 3.1	47.28	.08	36.0 2.6	54.33	.08	42.8 3.0	17.69	.07	76.2 3.6	34.42	.09	73.2 2.2
18.5	31.70	.02	70.7 2.8	47.31	.03	38.6 2.5	54.35	.02	45.8 2.8	17.68	.01	79.8 3.4	34.47	.05	75.4 2.0
28.5	31.67	.03	73.5 2.6	47.29	.02	41.1 2.2	54.33	.02	48.6 2.5	17.59	.09	83.2 3.3	34.47	.00	77.4 1.7
		.07			.06			.08			.16			.04	
Sept. 7.4	31.60		76.1 2.3	47.23		43.3 1.9	54.25		51.1 2.3	17.43		86.5 3.0	34.43		79.1 1.5
17.4	31.40	.12	78.4 2.0	47.13	.10	45.2 1.5	54.14	.11	53.4 1.9	17.19	.24	89.5 2.6	34.35	.08	80.6 1.2
27.4	31.33	.15	80.4 1.5	46.99	.14	46.7 1.3	53.99	.15	55.3 1.5	16.90	.29	92.1 2.3	34.24	.11	81.8 0.9
Oct. 7.4	31.14	.19	81.9 1.1	46.83	.16	48.0 0.8	53.80	.19	56.8 1.1	16.56	.34	94.4 1.8	34.10	.14	82.7 0.6
17.3	30.94	.20	83.0 0.7	46.65	.18	48.8 0.5	53.60	.20	57.9 0.7	16.18	.38	96.2 1.3	33.95	.15	83.3 0.2
		.22			.20			.22			.41			.17	
27.3	30.72		83.7 0.3	46.45		49.3 0.0	53.38		58.6 0.2	15.77		97.5 0.7	33.78		83.5 0.0
Nov. 6.3	30.51	.21	84.0 0.2	46.26	.19	49.3 0.3	53.16	.22	58.8 0.2	15.35	.42	98.2 0.2	33.62	.16	83.5 0.4
16.2	30.30	.21	83.8 0.7	46.07	.19	49.0 0.8	52.95	.21	58.6 0.7	14.92	.43	98.4 0.4	33.45	.17	83.1 0.7
26.2	30.11	.19	83.1 1.2	45.90	.17	48.2 1.1	52.75	.20	57.9 1.1	14.51	.41	98.0 0.9	33.30	.15	82.4 1.0
Dec. 6.2	29.93	.18	81.9 1.5	45.74	.16	47.1 1.5	52.57	.18	56.8 1.6	14.12	.39	97.1 1.5	33.17	.13	81.4 1.3
		.14			.12			.16			.36			.11	
16.2	29.79		80.4 2.0	45.62		45.6 1.8	52.41		55.2 1.9	13.76		95.6 2.0	33.06		80.1 1.5
26.1	29.68	.11	78.4 2.2	45.52	.10	43.8 2.1	52.29	.12	53.3 2.3	13.46	.30	93.6 2.5	32.97	.09	78.6 1.7
36.1	29.60	.08	76.2	45.45	.07	41.7	52.20	.09	51.0	13.21	.25	91.1	32.92	.05	76.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Capricorni.		β Aquarii.		β Cephei (<i>pr.</i>).		ξ Aquarii.		74 Cygni.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 21 21	° ' -22 50	h m 21 26	° ' - 5 59	h m 21 27	° ' +70 7	h m 21 32	° ' - 8 17	h m 21 32	° ' +39 58
	s "	"	s "	"	s "	"	s "	"	s "	"
Jan. 1.1	0.83	23.2	20.81	79.5	21.14	54.2	28.90	49.3	58.53	23.0
11.1	0.81	22.9	20.80	80.1	20.79	51.7	28.88	49.8	58.44	20.7
21.1	0.83	22.4	20.80	80.6	20.54	48.8	28.89	50.1	58.39	18.2
31.0	0.88	21.8	20.85	81.0	20.39	45.6	28.92	50.4	58.38	15.6
Feb. 10.0	0.96	21.1	20.92	81.3	20.35	42.3	28.99	50.6	58.41	13.0
20.0	1.08	20.2	21.02	81.5	20.43	39.1	29.08	50.6	58.49	10.4
Mar. 2.0	1.23	19.2	21.15	81.4	20.63	36.0	29.21	50.3	58.61	8.1
11.9	1.41	18.0	21.31	81.1	20.95	33.1	29.36	49.9	58.78	6.0
21.9	1.62	16.7	21.50	80.6	21.36	30.7	29.55	49.3	58.99	4.4
31.9	1.85	15.2	21.71	79.8	21.87	28.7	29.76	48.4	59.24	3.2
Apr. 10.9	2.12	13.7	21.96	78.8	22.45	27.2	30.00	47.3	59.53	2.5
20.8	2.40	12.1	22.22	77.6	23.09	26.4	30.27	46.1	59.85	2.3
30.8	2.71	10.5	22.51	76.2	23.77	26.2	30.55	44.6	60.19	2.7
May 10.8	3.03	8.9	22.80	74.7	24.46	26.5	30.85	43.0	60.54	3.6
20.7	3.35	7.3	23.10	73.0	25.16	27.6	31.15	41.3	60.90	5.0
30.7	3.68	5.8	23.41	71.2	25.82	29.1	31.46	39.5	61.26	6.9
June 9.7	3.99	4.5	23.71	69.4	26.45	31.2	31.76	37.8	61.60	9.2
19.7	4.29	3.3	23.99	67.7	27.01	33.8	32.05	36.1	61.92	11.8
29.6	4.57	2.4	24.25	66.0	27.51	36.7	32.31	34.5	62.21	14.7
July 9.6	4.81	1.7	24.48	64.5	27.91	40.0	32.55	33.0	62.46	17.7
19.6	5.02	1.2	24.68	63.1	28.22	43.5	32.75	31.7	62.67	20.9
29.6	5.19	0.9	24.83	61.9	28.42	47.1	32.92	30.6	62.82	24.1
Aug. 8.5	5.31	0.9	24.94	60.8	28.51	50.8	33.04	29.7	62.93	27.3
18.5	5.38	1.1	25.01	60.0	28.50	54.5	33.11	29.1	62.98	30.4
28.5	5.40	1.5	25.04	59.4	28.38	58.2	33.14	28.6	62.98	33.4
Sept. 7.4	5.38	2.0	25.02	59.0	28.16	61.6	33.13	28.4	62.93	36.1
17.4	5.31	2.7	24.96	58.8	27.85	64.8	33.07	28.3	62.83	38.5
27.4	5.20	3.5	24.87	58.8	27.46	67.7	32.99	28.3	62.69	40.6
Oct. 7.4	5.07	4.2	24.75	59.0	26.99	70.2	32.87	28.6	62.52	42.4
17.3	4.92	5.0	24.61	59.2	26.47	72.3	32.74	28.9	62.33	43.7
27.3	4.75	5.7	24.46	59.6	25.90	73.9	32.59	29.3	62.12	44.7
Nov. 6.3	4.59	6.3	24.31	60.0	25.30	75.0	32.44	29.8	61.90	45.2
16.3	4.43	6.8	24.17	60.6	24.69	75.5	32.30	30.4	61.68	45.2
26.2	4.28	7.2	24.03	61.2	24.09	75.4	32.16	31.0	61.46	44.7
Dec. 6.2	4.15	7.4	23.92	61.8	23.51	74.7	32.05	31.6	61.27	43.8
16.2	4.05	7.5	23.82	62.4	22.97	73.5	31.95	32.2	61.09	42.4
26.1	3.98	7.5	23.76	63.1	22.49	71.7	31.88	32.7	60.94	40.6
36.1	3.94	7.3	23.75	63.7	22.08	69.4	31.84	33.2	60.83	38.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	λ^1 Octantis.		ϵ Pegasi.		ι^1 Cephei.		π^2 Cygni.		μ Capricorni.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 21 35	° ' -83 9	h m 21 39	° ' + 9 25	h m 21 40	° ' +70 51	h m 21 43	° ' +48 50	h m 21 47	° ' -14 0
	s "	" "	s "	" "	s "	" "	s "	" "	s "	" "
Jan. 1.1	38.45	93.3	19.40	24.4	26.53	41.0	7.69	83.1	53.95	61.8
11.1	37.66	90.3	19.36	23.1	26.14	38.6	7.55	80.7	53.92	61.9
21.1	37.18	87.0	19.35	21.8	25.84	35.8	7.46	78.1	53.91	62.0
31.1	37.00	83.4	19.37	20.5	25.65	32.8	7.41	75.3	53.93	61.9
Feb. 10.0	37.13	79.8	19.42	19.4	25.58	29.5	7.42	72.4	53.98	61.7
20.0	37.55	76.1	19.50	18.3	25.63	26.3	7.48	69.6	54.06	61.3
Mar. 2.0	38.26	72.5	19.62	17.5	25.79	23.1	7.60	66.9	54.18	60.7
11.9	39.24	69.0	19.76	16.9	26.08	20.2	7.77	64.5	54.32	59.9
21.9	40.46	65.8	19.94	16.6	26.48	17.7	7.99	62.4	54.50	58.9
31.9	41.88	62.8	20.14	16.7	26.98	15.5	8.26	60.8	54.70	57.8
Apr. 10.9	43.50	60.2	20.38	17.1	27.56	13.9	8.58	59.8	54.94	56.4
20.8	45.26	58.0	20.64	17.8	28.20	12.9	8.93	59.3	55.20	54.9
30.8	47.12	56.2	20.92	18.9	28.90	12.5	9.31	59.3	55.48	53.3
May 10.8	49.07	54.9	21.21	20.3	29.62	12.7	9.71	60.0	55.79	51.6
20.7	51.04	54.1	21.52	22.0	30.33	13.5	10.11	61.2	56.09	49.9
30.7	53.01	53.8	21.82	23.9	31.04	14.9	10.51	62.9	56.40	48.2
June 9.7	54.91	54.0	22.12	26.0	31.70	16.9	10.90	65.0	56.71	46.5
19.7	56.71	54.8	22.40	28.2	32.31	19.3	11.26	67.6	57.01	44.9
29.6	58.35	56.0	22.66	30.4	32.84	22.1	11.59	70.5	57.29	43.4
July 9.6	59.80	57.7	22.90	32.6	33.29	25.3	11.87	73.6	57.54	42.2
19.6	61.01	59.8	23.10	34.7	33.64	28.8	12.10	76.9	57.76	41.1
29.6	61.95	62.2	23.26	36.8	33.89	32.4	12.28	80.3	57.94	40.3
Aug. 8.5	62.58	64.9	23.38	38.7	34.02	36.1	12.40	83.8	58.08	39.7
18.5	62.88	67.8	23.45	40.4	34.05	39.8	12.46	87.2	58.18	39.3
28.5	62.85	70.7	23.48	41.8	33.97	43.5	12.46	90.4	58.22	39.2
Sept. 7.5	62.48	73.6	23.47	43.1	33.78	47.0	12.40	93.5	58.22	39.2
17.4	61.78	76.4	23.42	44.2	33.49	50.3	12.30	96.3	58.19	39.5
27.4	60.78	78.9	23.33	44.9	33.12	53.3	12.14	98.8	58.11	39.9
Oct. 7.4	59.52	81.1	23.22	45.5	32.67	56.0	11.95	100.9	58.00	40.4
17.3	58.04	82.8	23.09	45.8	32.15	58.3	11.72	102.7	57.88	40.9
27.3	56.41	84.0	22.95	45.8	31.58	60.1	11.47	103.9	57.74	41.6
Nov. 6.3	54.68	84.6	22.80	45.7	30.98	61.4	11.21	104.7	57.59	42.2
16.3	52.92	84.6	22.65	45.3	30.35	62.1	10.94	105.0	57.44	42.8
26.2	51.21	84.0	22.51	44.6	29.73	62.2	10.68	104.8	57.30	43.4
Dec. 6.2	49.61	82.7	22.38	43.8	29.12	61.7	10.43	104.0	57.18	43.9
16.2	48.18	80.9	22.28	42.9	28.55	60.7	10.20	102.8	57.07	44.3
26.2	46.96	78.6	22.19	41.8	28.03	59.0	10.00	101.1	56.99	44.7
36.1	46.00	75.8	22.14	40.5	27.59	56.9	9.84	98.9	56.94	45.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	16 Pegasi.		79 Draconis.		α Aquarii.		α Gruis.		π^2 Pegasi.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 21 48	° ' +25 27	h m 21 51	° ' +73 13	h m 22 0	° ' - 0 47	h m 22 1	° ' -47 25	h m 22 5	° ' +32 41
	s	"	s	"	s	"	s	"	s	"
Jan. 1.1	33.40	46.5	35.73	84.0	42.07	56.9	59.31	90.8	35.42	47.6
11.1	33.33 ^{.07}	44.7 ^{1.8}	35.25 ^{.48}	81.8 ^{2.2}	42.02 ^{.05}	57.7 ^{.08}	59.22 ^{.05}	89.4 ^{1.4}	35.32 ^{.10}	45.7 ^{1.9}
21.1	33.29 ^{.04}	42.7 ^{2.0}	34.87 ^{.38}	79.1 ^{2.7}	42.00 ^{.02}	58.4 ^{.07}	59.17 ^{.05}	87.7 ^{1.7}	35.26 ^{.06}	43.6 ^{2.1}
31.1	33.29 ^{.00}	40.7 ^{2.0}	34.60 ^{.27}	76.1 ^{3.0}	42.00 ^{.00}	59.1 ^{.07}	59.16 ^{.01}	85.7 ^{2.0}	35.23 ^{.03}	41.4 ^{2.2}
Feb. 10.0	33.32 ^{.03}	38.7 ^{2.0}	34.47 ^{.13}	72.9 ^{3.2}	42.00 ^{.04}	59.7 ^{.06}	59.19 ^{.03}	83.5 ^{2.2}	35.23 ^{.00}	39.1 ^{2.3}
	33.32 ^{.06}	38.7 ^{1.9}	34.47 ^{.01}	72.9 ^{3.3}	42.04 ^{.06}	59.7 ^{.04}	59.19 ^{.08}	83.5 ^{2.4}	35.23 ^{.04}	39.1 ^{2.2}
20.0	33.38	36.8	34.48	69.6	42.10	60.1	59.27	81.1	35.27	36.9
Mar. 2.0	33.48 ^{.10}	35.1 ^{1.7}	34.62 ^{.14}	66.4 ^{3.2}	42.19 ^{.09}	60.3 ^{.02}	59.40 ^{.13}	78.6 ^{2.5}	35.35 ^{.08}	34.8 ^{2.1}
12.0	33.62 ^{.14}	33.7 ^{1.4}	34.91 ^{.29}	63.4 ^{3.0}	42.32 ^{.13}	60.3 ^{.00}	59.57 ^{.17}	76.0 ^{2.6}	35.48 ^{.13}	33.0 ^{1.8}
21.9	33.80 ^{.18}	32.6 ^{1.1}	35.32 ^{.41}	60.7 ^{2.7}	42.48 ^{.16}	60.3 ^{.03}	59.57 ^{.22}	73.4 ^{2.6}	35.48 ^{.16}	33.0 ^{1.5}
31.9	34.01 ^{.21}	31.9 ^{0.7}	35.85 ^{.53}	58.5 ^{2.2}	42.66 ^{.18}	60.0 ^{.06}	59.79 ^{.25}	70.9 ^{2.5}	35.64 ^{.21}	31.5 ^{1.0}
	34.01 ^{.25}	31.9 ^{0.3}	35.85 ^{.63}	58.5 ^{1.8}	42.66 ^{.22}	59.4 ^{.08}	60.04 ^{.30}	70.9 ^{2.5}	35.85 ^{.24}	30.5 ^{0.7}
Apr. 10.9	34.26	31.6	36.48	56.7	42.88	58.6	60.34	68.4	36.09	29.8
20.8	34.53 ^{.27}	31.8 ^{0.2}	37.19 ^{.71}	55.5 ^{1.2}	43.13 ^{.25}	57.5 ^{1.1}	60.68 ^{.34}	66.0 ^{2.4}	36.37 ^{.28}	29.7 ^{0.1}
30.8	34.82 ^{.29}	32.5 ^{0.7}	37.96 ^{.80}	54.9 ^{0.6}	43.40 ^{.27}	56.2 ^{1.3}	61.04 ^{.36}	63.8 ^{2.2}	36.68 ^{.31}	30.0 ^{0.3}
May 10.8	35.13 ^{.31}	33.6 ^{1.1}	38.76 ^{.41}	54.9 ^{0.0}	43.68 ^{.28}	54.7 ^{1.5}	61.43 ^{.39}	61.9 ^{1.9}	37.00 ^{.32}	30.8 ^{0.8}
20.7	35.46 ^{.33}	33.6 ^{1.5}	39.57 ^{.81}	54.9 ^{0.7}	43.98 ^{.30}	54.7 ^{1.8}	61.84 ^{.41}	61.9 ^{1.7}	37.00 ^{.34}	30.8 ^{1.3}
	35.46 ^{.32}	35.1 ^{1.8}	39.57 ^{.80}	55.6 ^{1.2}	43.98 ^{.31}	52.9 ^{1.8}	61.84 ^{.41}	60.2 ^{1.4}	37.34 ^{.34}	32.1 ^{1.7}
30.7	35.78	36.9	40.37	56.8	44.29	51.1	62.25	58.8	37.68	33.8
June 9.7	36.09 ^{.31}	39.1 ^{2.2}	41.13 ^{.76}	58.6 ^{1.8}	44.59 ^{.30}	49.1 ^{2.0}	62.67 ^{.42}	57.8 ^{1.0}	38.01 ^{.33}	35.8 ^{2.0}
19.7	36.39 ^{.30}	41.5 ^{2.4}	41.82 ^{.69}	60.8 ^{2.2}	44.89 ^{.30}	47.2 ^{1.9}	63.07 ^{.40}	57.1 ^{0.7}	38.33 ^{.30}	38.2 ^{2.4}
29.6	36.67 ^{.28}	44.1 ^{2.6}	42.44 ^{.62}	63.5 ^{2.7}	45.16 ^{.27}	45.3 ^{1.9}	63.45 ^{.38}	56.9 ^{0.2}	38.63 ^{.32}	40.9 ^{2.7}
July 9.6	36.92 ^{.25}	46.8 ^{2.7}	42.97 ^{.53}	66.6 ^{3.1}	45.41 ^{.25}	43.4 ^{1.9}	63.80 ^{.35}	57.0 ^{0.1}	38.90 ^{.27}	43.7 ^{2.8}
	36.92 ^{.21}	46.8 ^{2.7}	42.97 ^{.42}	66.6 ^{3.4}	45.41 ^{.22}	43.4 ^{1.7}	63.80 ^{.30}	57.0 ^{0.5}	38.90 ^{.23}	43.7 ^{2.9}
19.6	37.13	49.5	43.39	70.0	45.63	41.7	64.10	57.5	39.13	46.6
29.6	37.29 ^{.16}	52.3 ^{2.8}	43.69 ^{.30}	73.5 ^{3.5}	45.81 ^{.18}	40.1 ^{1.6}	64.36 ^{.26}	58.4 ^{0.9}	39.32 ^{.19}	49.5 ^{2.9}
Aug. 8.5	37.42 ^{.13}	54.9 ^{2.6}	43.87 ^{.18}	77.2 ^{3.7}	45.96 ^{.15}	38.8 ^{1.3}	64.56 ^{.20}	59.6 ^{1.2}	39.47 ^{.15}	49.5 ^{3.0}
18.5	37.50 ^{.08}	57.5 ^{2.6}	43.93 ^{.06}	81.0 ^{3.8}	46.05 ^{.09}	37.6 ^{1.2}	64.69 ^{.13}	61.1 ^{1.5}	39.56 ^{.09}	52.5 ^{2.8}
28.5	37.53 ^{.03}	59.8 ^{2.3}	43.87 ^{.06}	84.7 ^{3.7}	46.11 ^{.06}	36.7 ^{0.9}	64.77 ^{.08}	62.8 ^{1.7}	39.61 ^{.05}	55.3 ^{2.7}
	37.53 ^{.02}	59.8 ^{2.1}	43.87 ^{.18}	84.7 ^{3.6}	46.11 ^{.01}	36.7 ^{0.8}	64.77 ^{.01}	62.8 ^{1.9}	39.61 ^{.00}	58.0 ^{2.5}
Sept. 7.5	37.51	61.9	43.69	88.3	46.12	35.9	64.78	64.7	39.61	60.5
17.4	37.46 ^{.05}	63.8 ^{1.9}	43.39 ^{.30}	91.7 ^{3.4}	46.09 ^{.03}	35.4 ^{0.5}	64.73 ^{.05}	66.6 ^{1.9}	39.56 ^{.05}	62.8 ^{2.3}
27.4	37.37 ^{.09}	65.4 ^{1.6}	42.99 ^{.48}	94.9 ^{3.2}	46.03 ^{.06}	35.1 ^{0.3}	64.62 ^{.11}	68.5 ^{1.9}	39.48 ^{.08}	64.8 ^{2.0}
Oct. 7.4	37.25 ^{.12}	66.7 ^{1.3}	42.51 ^{.40}	97.7 ^{2.8}	45.94 ^{.09}	35.1 ^{0.0}	64.46 ^{.16}	70.3 ^{1.8}	39.36 ^{.12}	66.5 ^{1.7}
17.4	37.10 ^{.15}	67.6 ^{0.9}	41.94 ^{.57}	100.1 ^{2.4}	45.82 ^{.12}	35.2 ^{0.1}	64.27 ^{.19}	72.0 ^{1.7}	39.22 ^{.14}	67.8 ^{1.3}
	37.10 ^{.16}	67.6 ^{0.6}	41.94 ^{.63}	100.1 ^{2.0}	45.82 ^{.13}	35.2 ^{0.2}	64.27 ^{.22}	72.0 ^{1.4}	39.22 ^{.17}	67.8 ^{1.0}
27.3	36.94	68.2	41.31	102.1	45.69	35.4	64.05	73.4	39.05	68.8
Nov. 6.3	36.78 ^{.16}	68.5 ^{0.3}	40.63 ^{.68}	103.6 ^{1.5}	45.56 ^{.13}	35.8 ^{0.4}	63.81 ^{.24}	74.5 ^{1.1}	38.88 ^{.17}	69.4 ^{0.6}
16.3	36.61 ^{.17}	68.4 ^{0.1}	39.92 ^{.71}	104.5 ^{0.9}	45.42 ^{.14}	36.3 ^{0.5}	63.57 ^{.24}	75.3 ^{0.8}	38.70 ^{.18}	69.5 ^{0.1}
26.2	36.44 ^{.17}	67.9 ^{0.5}	39.21 ^{.71}	104.8 ^{0.3}	45.28 ^{.14}	36.9 ^{0.6}	63.33 ^{.21}	75.6 ^{0.3}	38.52 ^{.18}	69.2 ^{0.3}
Dec. 6.2	36.29 ^{.15}	67.1 ^{0.8}	38.50 ^{.71}	104.6 ^{0.2}	45.16 ^{.12}	37.6 ^{0.7}	63.12 ^{.24}	75.6 ^{0.0}	38.35 ^{.17}	68.6 ^{0.6}
	36.29 ^{.13}	67.1 ^{1.2}	38.50 ^{.67}	104.6 ^{0.9}	45.16 ^{.11}	37.6 ^{0.7}	63.12 ^{.20}	75.6 ^{0.4}	38.35 ^{.16}	68.6 ^{1.1}
16.2	36.16	65.9	37.83	103.7	45.05	38.3	62.92	75.2	38.19	67.5
26.2	36.04 ^{.12}	64.4 ^{1.5}	37.21 ^{.62}	102.2 ^{1.5}	44.96 ^{.09}	39.1 ^{0.8}	62.76 ^{.16}	74.4 ^{0.8}	38.05 ^{.14}	66.1 ^{1.4}
36.1	35.96 ^{.03}	62.7 ^{1.7}	36.66 ^{.55}	100.2 ^{2.0}	44.90 ^{.06}	39.9 ^{0.8}	62.64 ^{.12}	73.2 ^{1.2}	37.93 ^{.12}	64.4 ^{1.7}

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	θ Aquarii.		ν Octantis.		γ Aquarii.		π Aquarii.		σ Aquarii.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 22 11	° ' " 8 16	h m 22 12	° ' " 86 27	h m 22 16	° ' " 1 52	h m 22 20	° ' " + 0 52	h m 22 25	° ' " - 11 10
	s	"	s	"	s	"	s	"	s	"
Jan. 1.2	36.73	.06 30.6	33.64	2.14 84.2	32.75	.05 64.5	13.45	.06 36.2	24.71	.06 61.5
11.1	36.67	.03 31.1	31.50	1.63 81.4	32.70	.04 65.3	13.39	.04 35.4	24.65	.04 61.9
21.1	36.64	.00 31.4	29.87	1.06 78.2	32.66	.01 65.9	13.35	.01 34.6	24.61	.02 62.1
31.1	36.64	.02 31.6	28.81	.49 74.7	32.65	.01 66.5	13.34	.01 33.9	24.59	.01 62.1
Feb. 10.0	36.66	.06 31.7	28.32	.10 71.0	32.67	.05 67.0	13.35	.04 33.2	24.60	.04 62.0
20.0	36.72	.09 31.7	28.42	.66 67.2	32.72	.08 67.3	13.39	.08 32.7	24.64	.08 61.8
Mar. 2.0	36.81	.11 31.4	29.08	1.19 63.4	32.80	.11 67.4	13.47	.10 32.5	24.72	.10 61.3
12.0	36.92	.15 30.9	30.27	1.70 59.7	32.91	.14 67.3	13.57	.14 32.4	24.82	.14 60.7
21.9	37.07	.18 30.2	31.97	2.16 56.1	33.05	.18 67.0	13.71	.17 32.6	24.96	.17 59.8
31.9	37.25	.22 29.3	34.13	2.57 52.8	33.23	.20 66.4	13.88	.21 33.1	25.13	.20 58.7
Apr. 10.9	37.47	.24 28.1	36.70	2.91 49.8	33.43	.24 65.5	14.09	.23 33.8	25.33	.23 57.3
20.9	37.71	.26 26.8	39.61	3.21 47.1	33.67	.26 64.4	14.32	.26 34.8	25.56	.26 55.8
30.8	37.97	.29 25.2	42.82	3.42 44.9	33.93	.28 63.0	14.58	.28 36.1	25.82	.29 54.2
May 10.8	38.26	.30 23.5	46.24	3.56 43.1	34.21	.30 61.4	14.86	.30 37.6	26.11	.29 52.4
20.8	38.56	.31 21.7	49.80	3.63 41.8	34.51	.31 59.7	15.16	.30 39.3	26.40	.31 50.6
30.7	38.87	.31 19.9	53.43	3.60 41.1	34.82	.30 57.8	15.46	.31 41.2	26.71	.32 48.7
June 9.7	39.18	.30 18.0	57.03	3.49 40.9	35.12	.30 55.9	15.77	.30 43.2	27.03	.30 46.8
19.7	39.48	.28 16.2	60.52	3.28 41.2	35.42	.28 53.9	16.07	.28 45.2	27.33	.29 45.0
29.7	39.76	.27 14.5	63.80	2.99 42.0	35.70	.27 52.0	16.35	.26 47.2	27.62	.28 43.4
July 9.6	40.03	.23 12.9	66.79	2.62 43.4	35.97	.23 50.2	16.61	.24 49.1	27.90	.24 41.9
19.6	40.26	.19 11.5	69.41	2.15 45.2	36.20	.19 48.5	16.85	.19 50.9	28.14	.21 40.5
29.6	40.45	.16 10.3	71.56	1.62 47.5	36.39	.16 46.9	17.04	.16 52.6	28.35	.17 39.4
Aug. 8.6	40.61	.11 9.3	73.18	1.04 50.1	36.55	.12 45.6	17.20	.12 54.1	28.52	.12 38.6
18.5	40.72	.07 8.6	74.22	.41 52.9	36.67	.07 44.5	17.32	.07 55.3	28.64	.09 38.0
28.5	40.79	.02 8.1	74.63	.24 55.9	36.74	.02 43.6	17.39	.03 56.4	28.73	.03 37.6
Sept. 7.5	40.81	.01 7.8	74.39	.89 58.9	36.76	.01 42.9	17.42	.01 57.2	28.76	.00 37.5
17.4	40.80	.06 7.7	73.50	1.51 61.9	36.75	.05 42.5	17.41	.04 57.8	28.76	.04 37.6
27.4	40.74	.08 7.8	71.99	2.08 64.7	36.70	.08 42.2	17.37	.08 58.2	28.72	.07 37.9
Oct. 7.4	40.66	.11 8.1	69.91	2.58 67.2	36.62	.10 42.2	17.29	.10 58.4	28.65	.11 38.3
17.4	40.55	.13 8.5	67.33	2.98 69.3	36.52	.12 42.3	17.19	.12 58.4	28.54	.12 38.9
27.3	40.42	.13 9.0	64.35	3.27 70.9	36.40	.13 42.6	17.07	.13 58.2	28.42	.13 39.5
Nov. 6.3	40.29	.14 9.6	61.08	3.44 72.0	36.27	.14 43.0	16.94	.13 57.9	28.29	.13 40.2
16.3	40.15	.13 10.2	57.64	3.48 72.4	36.13	.13 43.5	16.81	.13 57.4	28.16	.13 40.9
26.3	40.02	.13 10.8	54.16	3.39 72.2	36.00	.12 44.2	16.68	.13 56.8	28.02	.14 41.6
Dec. 6.2	39.89	.11 11.5	50.77	3.17 71.4	35.88	.12 44.8	16.55	.11 56.2	27.89	.11 42.2
16.2	39.78	.09 12.1	47.60	2.85 70.0	35.76	.09 45.5	16.44	.10 55.4	27.78	.10 42.8
26.2	39.69	.07 12.7	44.75	2.44 68.0	35.67	.07 46.3	16.34	.10 54.6	27.68	.10 43.3
36.1	39.62	.07 13.2	42.31	2.5 65.5	35.60	.07 47.0	16.26	.08 53.7	27.60	.08 43.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Lacertæ.		<i>η</i> Aquarii.		226 Cephei (B.).		10 Lacertæ.		<i>β</i> Octantis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 22 27	° ' " +49 46	h m 22 30	° ' " - 0 37	h m 22 30	° ' " +75 42	h m 22 34	° ' " +38 32	h m 22 35	° ' " -81 53
	s	"	s	"	s	"	s	"	s	"
Jan. 1.2	12.71	44.0	16.40	34.1	30.79	82.4	49.29	23.0	52.07	72.1
11.1	12.53	42.1	16.33	34.9	30.13	80.6	49.15	21.2	51.06	69.6
21.1	12.39	39.8	16.29	35.6	29.56	78.3	49.04	19.1	50.24	66.7
31.1	12.28	37.2	16.26	36.2	29.11	75.6	48.97	16.9	49.66	63.4
Feb. 10.1	12.22	34.5	16.27	36.8	28.81	72.6	48.93	14.5	49.31	59.9
20.0	12.22	31.7	16.30	37.2	28.66	69.4	48.94	12.1	49.21	56.2
Mar. 2.0	12.27	29.0	16.37	37.3	28.67	66.2	48.98	9.8	49.34	52.5
12.0	12.38	26.4	16.46	37.3	28.85	63.1	49.08	7.7	49.71	48.7
21.9	12.56	24.2	16.59	37.0	29.19	60.2	49.22	5.9	50.31	45.1
31.9	12.78	22.3	16.76	36.5	29.68	57.6	49.41	4.4	51.12	41.6
Apr. 10.9	13.06	20.8	16.95	35.7	30.31	55.4	49.64	3.4	52.12	38.4
20.9	13.38	19.9	17.18	34.6	31.06	53.7	49.91	2.8	53.30	35.4
30.8	13.75	19.5	17.43	33.3	31.89	52.5	50.21	2.7	54.63	32.9
May 10.8	14.14	19.7	17.71	31.7	32.79	52.0	50.55	3.2	56.08	30.7
20.8	14.55	20.4	18.00	29.9	33.72	52.1	50.90	4.1	57.62	29.0
30.8	14.96	21.7	18.31	28.1	34.66	52.7	51.26	5.4	59.22	27.9
June 9.7	15.38	23.4	18.62	26.1	35.58	54.0	51.62	7.3	60.84	27.2
19.7	15.78	25.6	18.92	24.2	36.45	55.8	51.97	9.4	62.43	27.1
29.7	16.15	28.1	19.21	22.2	37.26	58.0	52.31	11.9	63.96	27.6
July 9.6	16.48	31.0	19.47	20.3	37.97	60.7	52.61	14.7	65.39	28.6
19.6	16.78	34.1	19.71	18.5	38.58	63.8	52.88	17.6	66.67	30.0
29.6	17.01	37.4	19.92	16.9	39.07	67.2	53.11	20.6	67.76	31.9
Aug. 8.6	17.21	40.8	20.09	15.5	39.43	70.7	53.29	23.7	68.64	34.3
18.5	17.34	44.2	20.21	14.3	39.65	74.4	53.42	26.8	69.26	36.9
28.5	17.41	47.5	20.30	13.3	39.73	78.2	53.50	29.8	69.62	39.8
Sept. 7.5	17.42	50.7	20.34	12.5	39.67	81.9	53.54	32.6	69.69	42.7
17.5	17.38	53.8	20.34	12.0	39.48	85.6	53.52	35.2	69.47	45.7
27.4	17.28	56.6	20.31	11.7	39.17	89.1	53.46	37.6	68.98	48.6
Oct. 7.4	17.14	59.1	20.24	11.6	38.73	92.3	53.37	39.6	68.22	51.3
17.4	16.97	61.2	20.14	11.7	38.19	95.2	53.24	41.4	67.23	53.7
27.3	16.76	62.9	20.03	11.9	37.55	97.7	53.08	42.8	66.04	55.6
Nov. 6.3	16.53	64.2	19.91	12.3	36.84	99.7	52.91	43.7	64.71	57.0
16.3	16.28	65.0	19.78	12.8	36.07	101.2	52.72	44.3	63.28	57.9
26.3	16.03	65.3	19.65	13.4	35.26	102.2	52.53	44.4	61.80	58.1
Dec. 6.2	15.78	65.1	19.52	14.1	34.44	102.5	52.34	44.0	60.34	57.8
16.2	15.53	64.3	19.41	14.8	33.62	102.2	52.16	43.3	58.95	56.8
26.2	15.30	63.1	19.31	15.6	32.84	101.3	51.99	42.1	57.67	55.2
36.2	15.10	61.4	19.22	16.4	32.11	99.8	51.84	40.5	56.54	53.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Pegasi.		λ Pegasi.		ι Cephei.		λ Aquarii.		α Piscis Australis. (Fomalhaut.)	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 22 36	° ' " +10 18	h m 22 41	° ' " +23 2	h m 22 46	° ' " +65 40	h m 22 47	° ' " - 8 5	h m 22 52	° ' " -30 8
	s	"	s	"	s	"	s	"	s	"
Jan. 1.2	31.75	.08 61.3	46.01	.10 53.7	9.10	.38 69.9	27.30	.08 79.8	11.02	.10 52.2
11.1	31.67	.06 60.2	45.91	.07 52.2	8.72	.32 68.2	27.22	.06 80.3	10.92	.08 51.8
21.1	31.61	.03 59.0	45.84	.05 50.6	8.40	.25 66.0	27.16	.03 80.6	10.84	.04 51.2
31.1	31.58	.01 57.8	45.79	.03 48.9	8.15	.18 63.4	27.13	.01 80.8	10.80	.02 50.3
Feb. 10.1	31.57	.02 56.7	45.76	.01 47.2	7.97	.10 60.5	27.12	.01 80.9	10.78	.01 49.1
20.0	31.59	.06 55.7	45.77	.05 45.5	7.87	.00 57.5	27.13	.05 80.8	10.79	.04 47.7
Mar. 2.0	31.65	.09 54.8	45.82	.08 43.9	7.87	.10 54.4	27.18	.08 80.5	10.83	.09 46.0
12.0	31.74	.12 54.2	45.90	.12 42.6	7.97	.19 51.4	27.26	.12 80.0	10.92	.12 44.2
22.0	31.86	.16 53.9	46.02	.17 41.5	8.16	.28 48.5	27.38	.14 79.3	11.04	.15 42.2
31.9	32.02	.20 53.8	46.19	.19 40.8	8.44	.37 46.0	27.52	.19 78.3	11.19	.20 40.1
Apr. 10.9	32.22	.22 54.1	46.38	.24 40.4	8.81	.44 44.0	27.71	.21 77.1	11.39	.23 37.9
20.9	32.44	.26 54.7	46.62	.26 40.5	9.26	.51 42.4	27.92	.25 75.7	11.62	.27 35.6
30.8	32.70	.28 55.7	46.88	.30 40.9	9.77	.56 41.3	28.17	.27 74.1	11.89	.29 33.3
May 10.8	32.98	.29 56.9	47.18	.31 41.8	10.33	.59 40.8	28.44	.29 72.3	12.18	.32 31.1
20.8	33.27	.31 58.5	47.49	.32 43.0	10.92	.60 40.9	28.73	.30 70.5	12.50	.33 29.0
30.8	33.58	.31 60.2	47.81	.32 44.6	11.52	.60 41.6	29.03	.31 68.6	12.83	.34 27.0
June 9.7	33.89	.30 62.2	48.13	.32 46.5	12.12	.58 42.8	29.34	.31 66.6	13.17	.35 25.2
19.7	34.19	.30 64.3	48.45	.30 48.7	12.70	.54 44.6	29.65	.30 64.7	13.52	.33 23.7
29.7	34.49	.27 66.5	48.75	.29 51.0	13.24	.50 46.9	29.95	.28 62.9	13.85	.31 22.4
July 9.7	34.76	.24 68.7	49.04	.25 53.5	13.74	.43 49.5	30.23	.25 61.2	14.16	.29 21.4
19.6	35.00	.21 70.9	49.29	.22 56.1	14.17	.37 52.5	30.48	.23 59.7	14.45	.26 20.8
29.6	35.21	.17 73.0	49.51	.17 58.7	14.54	.28 55.8	30.71	.18 58.4	14.71	.21 20.6
Aug. 8.6	35.38	.13 75.0	49.68	.14 61.2	14.82	.20 59.3	30.89	.15 57.3	14.92	.17 20.6
18.5	35.51	.09 76.8	49.82	.14 63.6	15.02	.12 62.9	31.04	.10 56.5	15.09	.12 21.0
28.5	35.60	.04 78.4	49.91	.05 65.9	15.14	.03 66.6	31.14	.06 56.0	15.21	.07 21.8
Sept. 7.5	35.64	.01 79.8	49.96	.00 68.0	15.17	.05 70.3	31.20	.02 55.6	15.28	.02 22.7
17.5	35.65	.04 81.0	49.96	.03 69.9	15.12	.05 73.8	31.22	.02 55.5	15.30	.02 23.9
27.4	35.61	.06 81.9	49.93	.07 71.5	14.99	.13 77.1	31.20	.06 55.7	15.28	.07 25.3
Oct. 7.4	35.55	.09 82.6	49.86	.09 72.9	14.79	.27 80.2	31.14	.08 56.0	15.21	.09 26.7
17.4	35.46	.11 83.1	49.77	.12 73.9	14.52	.33 83.0	31.06	.10 56.4	15.12	.13 28.1
27.4	35.35	.12 83.3	49.65	.13 74.7	14.19	.37 85.4	30.96	.12 57.0	14.99	.15 29.5
Nov. 6.3	35.23	.14 83.2	49.52	.15 75.2	13.82	.41 87.4	30.84	.12 57.6	14.84	.15 30.8
16.3	35.09	.13 83.0	49.38	.14 75.3	13.41	.41 88.8	30.71	.13 58.3	14.69	.16 31.9
26.3	34.96	.13 82.6	49.23	.15 75.1	12.98	.43 89.8	30.58	.13 59.0	14.53	.16 32.8
Dec. 6.2	34.83	.12 81.9	49.08	.14 74.6	12.53	.44 90.1	30.46	.12 59.7	14.37	.15 33.5
16.2	34.71	.11 81.1	48.94	.12 73.8	12.09	.43 89.8	30.34	.11 60.4	14.22	.13 33.9
26.2	34.60	.09 80.2	48.82	.11 72.8	11.66	.41 89.0	30.23	.11 61.0	14.09	.12 34.0
36.2	34.51	.09 79.1	48.71	.11 71.4	11.25	.41 87.6	30.14	.09 61.5	13.97	.12 33.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Andromedæ.		α Pegasi. (Markab.)		φ Aquarii.		ο Cephei.		τ Pegasi.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.
	h m	° '	h m	° '	h m	° '	h m	° '	h m	° '
	22 57	+41 47	22 59	+14 40	23 9	- 6 34	23 14	+67 34	23 15	+23 11
	s	"	s	"	s	"	s	"	s	"
Jan. 1.2	22.22	56.4	50.15	31.7	12.14	54.4	33.76	35.3	44.68	67.4
11.2	22.06	54.8	50.05	30.5	12.05	55.0	33.32	34.0	44.57	66.1
21.1	21.93	52.8	49.98	29.3	11.97	55.4	32.93	32.1	44.47	64.7
31.1	21.82	50.6	49.92	28.0	11.92	55.7	32.60	29.8	44.39	63.1
Feb. 10.1	21.75	48.3	49.89	26.7	11.89	55.9	32.34	27.1	44.34	61.5
	21.72	45.9	49.89	25.5	11.88	55.9	32.17	24.2	44.31	59.9
Mar. 2.0	21.74	43.5	49.92	24.4	11.91	55.7	32.10	21.2	44.32	58.4
12.0	21.81	41.2	49.98	23.6	11.97	55.3	32.13	18.1	44.37	57.1
22.0	21.92	39.2	50.08	23.0	12.06	54.6	32.26	15.2	44.45	56.0
31.9	22.09	37.5	50.22	22.6	12.18	53.7	32.50	12.5	44.58	55.1
	22.31	36.2	50.40	22.6	12.35	52.6	32.84	10.1	44.75	54.7
Apr. 20.9	22.57	35.3	50.61	23.0	12.55	51.2	33.27	8.2	44.96	54.5
30.9	22.88	34.9	50.86	23.7	12.78	49.7	33.78	6.8	45.20	54.8
May 10.8	23.21	35.1	51.13	24.8	13.03	48.0	34.35	6.0	45.48	55.5
20.8	23.57	35.7	51.42	26.1	13.32	46.1	34.96	5.7	45.78	56.6
	23.94	36.8	51.73	27.8	13.62	44.2	35.61	6.0	46.10	58.0
June 9.7	24.32	38.4	52.04	29.7	13.93	42.2	36.26	6.8	46.42	59.7
19.7	24.70	40.4	52.36	31.7	14.23	40.2	36.90	8.2	46.75	61.7
29.7	25.05	42.7	52.66	33.9	14.54	38.3	37.51	10.1	47.07	63.9
July 9.7	25.38	45.3	52.95	36.2	14.83	36.6	38.08	12.5	47.37	66.2
	25.68	48.2	53.20	38.5	15.09	35.0	38.60	15.2	47.64	68.7
Aug. 8.6	25.94	51.2	53.43	40.7	15.33	33.5	39.04	18.3	47.89	71.2
18.6	26.15	54.3	53.62	42.9	15.53	32.4	39.41	21.6	48.10	73.7
28.5	26.32	57.4	53.78	44.9	15.70	31.4	39.70	25.2	48.27	76.1
	26.43	60.5	53.89	46.8	15.82	30.7	39.90	28.8	48.40	78.3
	26.49	63.4	53.95	48.5	15.90	30.3	40.01	32.5	48.48	80.5
Sept. 7.5	26.51	66.2	53.98	49.9	15.94	30.1	40.03	36.1	48.53	82.4
17.5	26.47	68.8	53.97	51.1	15.94	30.2	39.97	39.6	48.53	84.1
27.5	26.40	71.2	53.93	52.1	15.91	30.4	39.82	42.9	48.50	85.5
Oct. 7.4	26.29	73.2	53.86	52.8	15.84	30.8	39.60	46.0	48.44	86.7
	26.15	74.8	53.76	53.2	15.76	31.4	39.31	48.7	48.35	87.6
Nov. 6.3	25.98	76.1	53.65	53.4	15.65	32.0	38.96	51.0	48.24	88.2
16.3	25.80	76.9	53.53	53.4	15.54	32.7	38.56	52.8	48.11	88.5
26.3	25.61	77.3	53.40	53.1	15.41	33.5	38.12	54.1	47.98	88.5
Dec. 6.3	25.41	77.3	53.27	52.5	15.29	34.2	37.65	54.9	47.85	88.2
	25.21	76.7	53.14	51.8	15.17	34.9	37.18	55.1	47.71	87.6
16.2	25.02	75.8	53.02	50.9	15.06	35.6	36.70	54.6	47.57	86.7
26.2	24.85	74.4	52.92	49.8	14.96	36.2	36.24	53.6	47.45	85.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	θ Piscium.		λ Andromedæ.		ι Piscium.		γ Cephei.		δ Aquarii.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 23 22	° ' + 55 0	h m 23 32	° ' +45 55	h m 23 34	° ' + 5 5	h m 23 35	° ' +77 4	h m 23 39	° ' -18 49
	s "	"	s "	"	s "	"	s "	"	s "	"
Jan. 1.2	57.29 10	14.2 0.9	43.70 20	38.2 1.3	52.08 10	29.9 0.9	17.46 84	72.9 0.9	4.54 12	36.4 0.2
11.2	57.19 09	13.3 0.9	43.50 18	36.9 1.7	51.98 09	29.0 0.8	16.62 78	72.0 1.5	4.42 10	36.6 0.0
21.2	57.10 06	12.4 0.9	43.32 15	35.2 2.0	51.89 07	28.2 0.9	15.84 69	70.5 2.1	4.32 08	36.6 0.2
31.1	57.04 05	11.5 0.8	43.17 12	33.2 2.3	51.82 06	27.3 0.7	15.15 56	68.4 2.5	4.24 06	36.4 0.5
Feb. 10.1	56.99 02	10.7 0.6	43.05 08	30.9 2.4	51.76 03	26.6 0.7	14.59 42	65.9 2.8	4.18 03	35.9 0.7
20.1	56.97 01	10.1 0.6	42.97 04	28.5 2.5	51.73 00	25.9 0.5	14.17 25	63.1 3.1	4.15 01	35.2 0.9
Mar. 2.0	56.98 04	9.5 0.3	42.93 02	26.0 2.4	51.73 03	25.4 0.3	13.92 08	60.0 3.1	4.14 02	34.3 1.2
12.0	57.02 08	9.2 0.2	42.95 08	23.6 2.2	51.76 07	25.1 0.2	13.84 11	56.9 3.1	4.16 06	33.1 1.4
22.0	57.10 11	9.1 0.1	43.03 13	21.4 2.1	51.83 10	25.1 0.2	13.95 29	53.8 3.0	4.22 10	31.7 1.6
Apr. 1.0	57.21 15	9.3 0.4	43.16 19	19.3 1.6	51.93 14	25.3 0.4	14.24 46	50.8 2.7	4.32 14	30.1 1.8
10.9	57.36 19	9.7 0.7	43.35 24	17.7 1.3	52.07 18	25.7 0.8	14.70 63	48.1 2.3	4.46 18	28.3 2.0
20.9	57.55 22	10.4 1.1	43.59 29	16.4 0.8	52.25 21	26.5 1.0	15.33 76	45.8 1.9	4.64 21	26.3 2.1
30.9	57.77 26	11.5 1.3	43.88 33	15.6 0.4	52.46 25	27.5 1.3	16.09 88	43.9 1.6	4.85 24	24.2 2.1
May 10.9	58.03 27	12.8 1.5	44.21 37	15.2 0.2	52.71 27	28.8 1.6	16.97 96	42.6 0.8	5.09 28	22.1 2.2
20.8	58.30 30	14.3 1.8	44.58 38	15.4 0.7	52.98 29	30.4 1.7	17.93 102	41.8 0.2	5.37 30	19.9 2.2
30.8	58.60 31	16.1 1.9	44.96 40	16.1 1.1	53.27 31	32.1 1.9	18.95 104	41.6 0.3	5.67 31	17.7 2.1
June 9.8	58.91 31	18.0 2.0	45.36 41	17.2 1.6	53.58 31	34.0 2.0	19.99 104	41.9 1.0	5.98 32	15.6 1.9
19.7	59.22 30	20.0 2.1	45.77 39	18.8 2.0	53.89 31	36.0 2.0	21.03 101	42.9 1.4	6.30 32	13.7 1.8
29.7	59.52 29	22.1 2.0	46.16 38	20.8 2.3	54.20 30	38.0 2.0	22.04 95	44.3 2.0	6.62 31	11.9 1.6
July 9.7	59.81 27	24.1 2.1	46.54 34	23.1 2.6	54.50 27	40.0 2.0	22.99 87	46.3 2.4	6.93 29	10.3 1.3
19.6	60.08 24	26.2 1.9	46.88 31	25.7 2.9	54.77 25	42.0 1.9	23.86 77	48.7 2.9	7.22 26	9.0 1.0
29.6	60.32 21	28.1 1.7	47.19 27	28.6 3.0	55.02 22	43.9 1.7	24.63 66	51.6 3.1	7.48 23	8.0 0.7
Aug. 8.6	60.53 18	29.8 1.6	47.46 21	31.6 3.1	55.24 19	45.6 1.6	25.29 52	54.7 3.4	7.71 20	7.3 0.3
18.6	60.71 13	31.4 1.4	47.67 17	34.7 3.1	55.43 14	47.2 1.3	25.81 39	58.1 3.7	7.91 16	7.0 0.1
28.5	60.84 09	32.8 1.2	47.84 12	37.8 3.1	55.57 11	48.5 1.1	26.20 25	61.8 3.7	8.07 11	6.9 0.3
Sept. 7.5	60.93 05	34.0 0.9	47.96 06	40.9 3.0	55.68 06	49.6 0.9	26.45 10	65.5 3.7	8.18 07	7.2 0.5
17.5	60.98 02	34.9 0.7	48.02 02	43.9 2.8	55.74 03	50.5 0.7	26.55 05	69.2 3.8	8.25 03	7.7 0.8
27.5	61.00 02	35.6 0.5	48.04 03	46.7 2.6	55.77 01	51.2 0.4	26.50 19	73.0 3.6	8.28 01	8.5 1.0
Oct. 7.4	60.98 05	36.1 0.2	48.01 07	49.3 2.3	55.76 03	51.6 0.2	26.31 45	76.6 3.4	8.27 04	9.5 1.1
17.4	60.93 07	36.3 0.1	47.94 11	51.6 2.1	55.73 07	51.8 0.0	25.99 45	80.0 3.1	8.23 07	10.6 1.1
27.4	60.86 10	36.4 0.2	47.83 14	53.7 1.6	55.66 08	51.8 0.2	25.54 57	83.1 2.8	8.16 09	11.7 1.2
Nov. 6.4	60.76 10	36.2 0.3	47.69 17	55.3 1.3	55.58 10	51.6 0.3	24.97 67	85.9 2.3	8.07 12	12.9 1.2
16.3	60.66 12	35.9 0.4	47.52 19	56.6 0.8	55.48 11	51.3 0.5	24.30 76	88.2 1.8	7.95 12	14.1 1.0
26.3	60.54 12	35.5 0.6	47.33 20	57.4 0.4	55.37 11	50.8 0.6	23.54 83	90.0 1.3	7.83 13	15.1 1.0
Dec. 6.3	60.42 12	34.9 0.7	47.13 21	57.8 0.1	55.26 12	50.2 0.7	22.71 87	91.3 0.7	7.70 13	16.1 0.7
16.3	60.30 11	34.2 0.8	46.92 22	57.7 0.6	55.14 12	49.5 0.8	21.84 88	92.0 0.1	7.57 13	16.8 0.6
26.2	60.19 11	33.4 0.9	46.70 20	57.1 1.1	55.02 11	48.7 0.9	20.96 88	92.1 0.6	7.44 12	17.4 0.4
36.2	60.08	32.5	46.50	56.0	54.91	47.8	20.08	91.5	7.32	17.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.		♄ Sculptoris.			γ Octantis.			Groombridge 4163.			ω Piscium.		
		Right Ascension.		Declination <i>South.</i>	Right Ascension.		Declination <i>South.</i>	Right Ascension.		Declination <i>North.</i>	Right Ascension.		Declination <i>North.</i>
		h m	° ' "	h m	° ' "	h m	° ' "	h m	° ' "	h m	° ' "		
		23 43	-28 40	23 46	-82 33	23 49	+73 51	23 54	+6 18				
		s	"	s	"	s	"	s	"				
Jan.	1.2	46.60	45.0	14.37	81.8	61.49	59.0	14.36	62.0				
	11.2	46.46 .14	45.0 0.0	12.90 1.47	80.1 1.7	60.83 .66	58.2 0.8	14.25 .11	61.2 0.8				
	21.2	46.35 .11	44.6 0.4	11.57 1.33	77.9 2.2	60.20 .63	56.8 1.4	14.15 .10	60.4 0.8				
	31.1	46.25 .10	43.9 0.9	10.42 1.15	75.2 2.7	59.64 .56	54.9 1.9	14.06 .09	59.5 0.9				
Feb.	10.1	46.18 .07	43.0 0.7	9.49 0.93	72.1 3.1	59.16 .48	52.5 2.4	13.99 .07	58.8 0.7				
		.05	1.3	.71	3.4	.36	2.7	.05	0.7				
	20.1	46.13	41.7	8.78	68.7	58.80	49.8	13.94	58.1				
Mar.	2.1	46.11 .02	40.2 1.5	8.32 .46	65.1 3.6	58.57 .23	46.9 2.9	13.92 .02	57.5 0.6				
	12.0	46.13 .02	38.5 1.7	8.11 .21	61.3 3.8	58.47 .10	43.8 3.1	13.93 .01	57.2 0.3				
	22.0	46.19 .06	36.5 2.0	.04	3.9	.05	3.1	.04	0.1				
	32.0	46.19 .09	36.5 2.1	.30	3.8	.19	3.0	.09	0.1				
Apr.	1.0	46.28 .14	34.4 2.3	.54	3.7	.34	2.7	.12	0.4				
	11.0	46.42	32.1	8.99	49.9	59.05	35.0	14.18	57.6				
	20.9	46.60 .18	29.7 2.4	.78	3.5	.48	2.3	.16	0.6				
	30.9	46.81 .21	27.2 2.5	0.99	3.2	.59	2.0	.20	1.0				
May	10.9	47.06 .25	24.8 2.4	1.19	2.9	.69	1.4	.24	1.2				
	20.8	47.35 .29	22.4 2.4	1.37	2.5	.78	0.9	.26	1.5				
		.31	2.3	1.50	2.1	.82	0.3	.29	1.7				
	30.8	47.66	20.1	14.82	35.7	62.41	28.1	15.33	63.6				
June	9.8	47.99 .33	17.9 2.2	1.60	1.5	.86	0.2	.30	1.8				
	19.8	48.32 .33	16.0 1.9	1.67	1.1	.87	0.8	.31	1.9				
	29.7	48.66 .34	14.4 1.6	1.69	0.4	.84	1.3	.31	2.1				
July	9.7	48.99 .33	13.0 1.4	1.66	0.1	.81	1.9	.30	2.0				
		.30	1.0	1.58	0.6	.76	2.3	.29	2.0				
	19.7	49.29 .29	12.0 0.6	1.46	1.2	.67	2.7	.26	1.9				
	29.6	49.58 .25	11.4 0.2	1.30	1.7	.67	3.1	.23	1.8				
Aug.	8.6	49.83 .21	11.2 0.1	1.08	2.2	.59	3.3	.20	1.6				
	18.6	50.04 .17	11.3 0.5	0.83	2.6	.49	3.5	.16	1.4				
	28.6	50.21 .13	11.8 0.8	.55	2.8	.38	3.7	.12	1.2				
	7.5	50.34	12.6	23.02	43.9	66.55	34.6	16.84	73.4				
	17.5	50.41	13.7	24.48	46.9	67.22	37.3	17.10	75.3				
	27.5	50.45	15.0	25.78	50.0	67.81	40.4	17.33	77.1				
Oct.	7.5	50.44	16.5	26.86	53.1	68.30	43.7	17.53	78.7				
	17.4	50.39	18.1	27.69	56.0	68.68	47.2	17.69	80.1				
		.08	1.6	.94	2.7	.26	3.1	.12	1.2				
	27.4	50.31	19.7	28.24	43.9	68.94	50.9	17.81	81.3				
	6.4	50.20	21.2	28.49	46.9	69.09	54.6	17.90	82.3				
	16.4	50.08	22.7	28.43	50.0	69.12	58.3	17.94	83.0				
	26.3	49.94	24.0	28.05	53.1	69.04	61.9	17.96	83.5				
Dec.	6.3	49.79	25.0	27.38	56.0	68.85	65.3	17.94	83.8				
		.15	0.8	0.94	2.7	.30	3.1	.05	0.1				
	16.3	49.64	25.8	26.44	58.7	68.55	68.4	17.89	83.9				
	26.2	49.49	26.3	25.26	60.9	68.15	71.2	17.82	83.7				
	36.2	49.35	26.4	23.88	62.7	67.67	73.6	17.74	83.4				
		.15	0.5	1.18	2.2	.40	2.8	.07	0.2				
		.14	0.1	1.38	1.8	.48	2.4	.08	0.3				
				1.52	1.2	.56	1.9	.10	0.4				
				1.60	0.6	.62	1.4	.11	0.5				
				1.65	0.0	.66	0.8	.12	0.7				

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ' "	"	s	"	m s	' "	m s	h m s
Jan. 1	18 46 16.77	17.43	— 23 1 27.8	27.0	11.038	+ 12.20	+ 3 40.15	16 17.13	1 11.00	18 42 36.69
2	18 50 41.53	42.27	22 56 21.3	20.3	11.024	13.34	4 8.36	16 17.13	1 10.96	18 46 33.25
3	18 55 5.91	6.74	22 50 47.4	46.3	11.008	14.48	4 36.21	16 17.12	1 10.91	18 50 29.80
4	18 59 29.91	30.82	22 44 46.3	45.0	10.991	15.61	5 3.66	16 17.11	1 10.86	18 54 26.36
5	19 3 53.50	54.49	22 38 18.2	16.7	10.974	16.73	5 30.70	16 17.09	1 10.80	18 58 22.92
6	19 8 16.67	17.74	— 22 31 23.1	21.4	10.956	+ 17.85	+ 5 57.31	16 17.07	1 10.74	19 2 19.48
7	19 12 39.38	40.53	22 23 61.3	59.3	10.938	18.96	6 23.47	16 17.04	1 10.67	19 6 16.04
8	19 17 1.61	2.83	22 16 12.9	10.7	10.917	20.06	6 49.14	16 17.01	1 10.60	19 10 12.59
9	19 21 23.33	24.63	22 7 58.4	55.9	10.894	21.15	7 14.30	16 16.98	1 10.53	19 14 9.15
10	19 25 44.52	45.89	21 59 17.9	15.1	10.871	22.23	7 38.95	16 16.94	1 10.45	19 18 5.71
11	19 30 5.15	6.59	— 21 50 11.5	8.4	10.848	+ 23.30	+ 8 3.03	16 16.90	1 10.37	19 22 2.26
12	19 34 25.21	26.72	21 40 39.6	36.2	10.824	24.35	8 26.55	16 16.85	1 10.29	19 25 58.82
13	19 38 44.68	46.26	21 30 42.5	38.8	10.799	25.40	8 49.47	16 16.80	1 10.21	19 29 55.38
14	19 43 3.54	5.18	21 20 20.3	16.3	10.772	26.44	9 11.75	16 16.74	1 10.12	19 33 51.93
15	19 47 21.76	23.46	21 9 33.5	29.2	10.745	27.46	9 33.41	16 16.67	1 10.03	19 37 48.49
16	19 51 39.32	41.08	— 20 58 22.2	17.6	10.717	+ 28.46	+ 9 54.41	16 16.60	1 9.94	19 41 45.05
17	19 55 56.19	58.01	20 46 46.9	41.9	10.689	29.46	10 14.73	16 16.52	1 9.84	19 45 41.60
18	20 0 12.38	14.25	20 34 48.0	42.7	10.660	30.44	10 34.36	16 16.44	1 9.74	19 49 38.16
19	20 4 27.85	29.77	20 22 25.6	19.9	10.629	31.42	10 53.28	16 16.36	1 9.64	19 53 34.72
20	20 8 42.59	44.56	20 9 40.2	34.1	10.598	32.37	11 11.46	16 16.27	1 9.54	19 57 31.27
21	20 12 56.57	58.59	— 19 56 32.1	25.7	10.567	+ 33.30	+ 11 28.88	16 16.18	1 9.44	20 1 27.83
22	20 17 9.80	11.86	19 42 61.7	55.1	10.534	34.21	11 45.53	16 16.08	1 9.33	20 5 24.39
23	20 21 22.23	24.33	19 29 9.7	2.7	10.501	35.12	12 1.41	16 15.98	1 9.23	20 9 20.94
24	20 25 33.86	36.00	19 14 56.0	48.7	10.468	36.01	12 16.48	16 15.87	1 9.12	20 13 17.50
25	20 29 44.68	46.85	19 0 21.1	13.5	10.434	36.88	12 30.74	16 15.76	1 9.01	20 17 14.05
26	20 33 54.67	56.87	— 18 45 25.5	17.5	10.400	+ 37.74	+ 12 44.18	16 15.64	1 8.90	20 21 10.61
27	20 38 3.85	6.08	18 30 9.4	1.1	10.365	38.59	12 56.79	16 15.52	1 8.78	20 25 7.17
28	20 42 12.19	14.44	18 14 33.4	24.8	10.331	39.41	13 8.58	16 15.39	1 8.67	20 29 3.72
29	20 46 19.69	21.96	17 58 37.8	28.9	10.296	40.22	13 19.52	16 15.26	1 8.55	20 33 0.28
30	20 50 26.36	28.65	17 42 23.0	13.8	10.261	41.01	13 29.63	16 15.12	1 8.44	20 36 56.83
31	20 54 32.20	34.51	— 17 25 49.3	39.9	10.226	+ 41.78	+ 13 38.91	16 14.98	1 8.32	20 40 53.39
Feb. 1	20 58 37.19	39.52	17 8 57.2	47.5	10.191	42.54	13 47.34	16 14.84	1 8.21	20 44 49.94
2	21 2 41.36	43.71	16 51 47.1	37.1	10.157	43.29	13 54.96	16 14.69	1 8.09	20 48 46.50
3	21 6 44.71	47.07	16 34 19.2	8.9	10.123	44.01	14 1.74	16 14.54	1 7.98	20 52 43.05
4	21 10 47.25	49.62	16 16 34.0	23.4	10.089	44.73	14 7.70	16 14.38	1 7.86	20 56 39.61
5	21 14 48.97	51.35	— 15 58 32.1	21.3	10.055	+ 45.43	+ 14 12.85	16 14.22	1 7.74	21 0 36.16
6	21 18 49.88	52.26	15 40 13.6	2.6	10.021	46.10	14 17.21	16 14.05	1 7.63	21 4 32.72
7	21 22 49.98	52.36	15 21 38.9	27.7	9.988	46.77	14 20.75	16 13.88	1 7.51	21 8 29.27
8	21 26 49.31	51.69	15 2 48.5	37.1	9.956	47.41	14 23.52	16 13.71	1 7.40	21 12 25.83
9	21 30 47.85	50.23	14 43 42.9	31.3	9.923	48.04	14 25.49	16 13.53	1 7.29	21 16 22.38
10	21 34 45.63	48.01	— 14 24 22.4	10.6	9.891	+ 48.66	+ 14 26.70	16 13.35	1 7.18	21 20 18.94
11	21 38 42.64	45.01	14 4 47.5	35.6	9.859	49.24	14 27.15	16 13.16	1 7.07	21 24 15.49
12	21 42 38.89	41.25	13 44 58.5	46.4	9.828	49.82	14 26.85	16 12.97	1 6.96	21 28 12.04
13	21 46 34.40	36.75	13 24 55.8	43.6	9.798	50.38	14 25.79	16 12.78	1 6.85	21 32 8.60
14	21 50 29.17	31.51	13 4 40.0	27.7	9.768	50.92	14 24.01	16 12.59	1 6.74	21 36 5.15
15	21 54 23.21	25.54	— 12 43 71.4	59.0	9.738	+ 51.45	+ 14 21.48	16 12.39	1 6.64	21 40 1.71
16	21 58 16.55	18.86	— 12 23 30.5	18.0	9.708	+ 51.95	+ 14 18.26	16 12.19	1 6.54	21 43 58.26

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0.19 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ' "	"	s	"	m s	' "	m s	h m s
Feb. 16	21 58 16.55	18.86	- 12 23 30.5	18.0	9.708	+51.95	+ 14 18.26	16 12.19	I 6.54	21 43 58.26
17	22 2 9.18	11.47	12 2 37.6	25.1	9.679	52.44	14 14.32	16 11.98	I 6.44	21 47 54.82
18	22 6 1.11	3.38	11 41 33.2	20.6	9.650	52.91	14 9.70	16 11.78	I 6.34	21 51 51.37
19	22 9 52.34	54.59	11 20 17.8	5.2	9.621	53.35	14 4.37	16 11.57	I 6.24	21 55 47.92
20	22 13 42.91	45.14	10 58 51.7	39.2	9.593	53.78	13 58.57	16 11.35	I 6.14	21 59 44.48
21	22 17 32.80	35.01	- 10 37 15.6	3.1	9.565	+54.20	+ 13 51.70	16 11.13	I 6.04	22 3 41.03
22	22 21 22.03	24.22	10 15 29.7	17.2	9.538	54.60	13 44.38	16 10.91	I 5.95	22 7 37.58
23	22 25 10.62	12.79	9 53 34.5	22.0	9.512	54.98	13 36.40	16 10.69	I 5.86	22 11 34.14
24	22 28 58.57	60.71	9 31 30.5	18.1	9.486	55.34	13 27.79	16 10.46	I 5.77	22 15 30.69
25	22 32 45.91	48.02	9 9 17.9	5.5	9.460	55.69	13 18.57	16 10.23	I 5.69	22 19 27.24
26	22 36 32.63	34.71	- 8 46 57.3	45.0	9.435	+56.02	+ 13 8.74	16 9.99	I 5.61	22 23 23.80
27	22 40 18.78	20.82	8 24 29.0	16.8	9.411	56.33	12 58.33	16 9.75	I 5.53	22 27 20.35
28	22 44 4.36	6.37	8 1 53.4	41.3	9.388	56.63	12 47.36	16 9.51	I 5.45	22 31 16.90
Mar. 1	22 47 49.39	51.36	7 38 70.7	58.7	9.365	56.92	12 35.83	16 9.27	I 5.38	22 35 13.46
2	22 51 33.89	35.83	7 16 21.6	9.8	9.344	57.17	12 23.79	16 9.03	I 5.31	22 39 10.01
3	22 55 17.89	19.79	- 6 53 26.5	14.8	9.324	+57.40	+ 12 11.22	16 8.79	I 5.24	22 43 6.56
4	22 59 1.41	3.28	6 30 25.5	13.9	9.304	57.62	11 58.19	16 8.54	I 5.17	22 47 3.11
5	23 2 44.47	46.30	6 7 19.0	7.6	9.285	57.83	11 44.70	16 8.29	I 5.10	22 50 59.66
6	23 6 27.10	28.89	5 43 67.6	56.4	9.267	58.04	11 30.77	16 8.04	I 5.03	22 54 56.22
7	23 10 9.31	11.06	5 20 51.4	40.4	9.251	58.24	11 16.43	16 7.78	I 4.97	22 58 52.77
8	23 13 51.13	52.84	- 4 57 30.8	20.0	9.235	+58.42	+ 11 1.70	16 7.53	I 4.91	23 2 49.32
9	23 17 32.58	34.25	4 33 66.3	55.7	9.220	58.58	10 46.60	16 7.27	I 4.85	23 6 45.87
10	23 21 13.68	15.31	4 10 38.2	27.8	9.206	58.73	10 31.14	16 7.01	I 4.80	23 10 42.43
11	23 24 54.45	56.04	3 46 67.0	56.9	9.193	58.86	10 15.36	16 6.75	I 4.75	23 14 38.98
12	23 28 34.92	36.46	3 23 32.9	23.0	9.181	58.97	9 59.28	16 6.49	I 4.70	23 18 35.53
13	23 32 15.11	16.61	- 2 59 56.5	46.9	9.170	+59.07	+ 9 42.91	16 6.23	I 4.66	23 22 32.08
14	23 35 55.02	56.48	2 36 18.0	8.6	9.159	59.14	9 26.28	16 5.96	I 4.62	23 26 28.64
15	23 39 34.71	36.12	2 12 37.7	28.6	9.149	59.20	9 9.41	16 5.70	I 4.58	23 30 25.19
16	23 43 14.16	15.52	1 48 56.0	47.2	9.140	59.25	8 52.32	16 5.43	I 4.55	23 34 21.74
17	23 46 53.42	54.73	1 25 13.5	5.0	9.132	59.28	8 35.03	16 5.16	I 4.52	23 38 18.29
18	23 50 32.49	33.75	- 1 1 30.4	22.1	9.125	+59.30	+ 8 17.56	16 4.89	I 4.50	23 42 14.85
19	23 54 11.40	12.62	0 37 47.1	39.1	9.118	59.29	7 59.92	16 4.62	I 4.48	23 46 11.40
20	23 57 50.16	51.34	0 13 64.1	56.4	9.112	59.27	7 42.12	16 4.35	I 4.46	23 50 7.95
21	0 1 28.77	29.91	+ 0 9 38.2	45.6	9.107	59.24	7 24.18	16 4.08	I 4.44	23 54 4.50
22	0 5 7.27	8.36	0 33 19.6	26.7	9.102	59.20	7 6.12	16 3.81	I 4.42	23 58 1.06
23	0 8 45.66	46.70	+ 0 56 59.5	66.3	9.098	+59.13	+ 6 47.97	16 3.53	I 4.41	0 1 57.61
24	0 12 23.96	24.95	1 20 37.8	44.3	9.094	59.05	6 29.72	16 3.25	I 4.40	0 5 54.16
25	0 16 2.18	3.12	1 44 13.8	20.0	9.092	58.95	6 11.40	16 2.97	I 4.39	0 9 50.71
26	0 19 40.35	41.24	2 7 47.3	53.1	9.090	58.83	5 53.03	16 2.70	I 4.38	0 13 47.26
27	0 23 18.50	19.35	2 31 18.1	23.6	9.089	58.71	5 34.62	16 2.42	I 4.38	0 17 43.82
28	0 26 56.63	57.43	+ 2 54 45.7	50.9	9.089	+58.57	+ 5 16.20	16 2.15	I 4.38	0 21 40.37
29	0 30 34.77	35.53	3 18 9.7	14.6	9.090	58.42	4 57.79	16 1.87	I 4.39	0 25 36.92
30	0 34 12.93	13.64	3 41 29.9	34.5	9.091	58.26	4 39.40	16 1.59	I 4.40	0 29 33.47
31	0 37 51.15	51.82	4 4 45.9	50.2	9.094	58.09	4 21.07	16 1.31	I 4.41	0 33 30.02
32	0 41 29.44	30.06	4 27 57.3	61.3	9.098	57.92	4 2.82	16 1.03	I 4.42	0 37 26.58
33	0 45 7.84	8.42	+ 4 51 3.9	7.6	9.102	+57.73	+ 3 44.67	16 0.76	I 4.44	0 41 23.13
34	0 48 46.34	46.87	+ 5 14 5.3	8.7	9.107	+57.52	+ 3 26.62	16 0.48	I 4.46	0 45 19.68

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0^s.18 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ' "	"	s	"	m s	"	m s	h m s
Apr. 1	0 41 29.44	30.06	+ 4 27 57.3	61.3	9.098	+ 57.92	+ 4 2.82	16 1.03	I 4.42	0 37 26.58
2	0 45 7.84	8.42	4 51 3.9	7.6	9.102	57.73	3 44.67	16 0.76	I 4.44	0 41 23.13
3	0 48 46.34	46.87	5 14 5.3	8.7	9.107	57.52	3 26.62	16 0.48	I 4.46	0 45 19.68
4	0 52 24.98	25.47	5 37 1.1	4.2	9.113	57.26	3 8.71	16 0.21	I 4.48	0 49 16.24
5	0 56 3.79	4.23	5 59 51.0	53.8	9.121	56.98	2 50.98	15 59.93	I 4.51	0 53 12.79
6	0 59 42.78	43.18	+ 6 22 34.8	37.3	9.129	+ 56.70	+ 2 33.41	15 59.66	I 4.54	0 57 9.34
7	I 3 21.98	22.33	6 45 12.2	14.4	9.138	56.41	2 16.06	15 59.38	I 4.57	I 1 5.89
8	I 7 1.40	1.71	7 7 42.6	44.5	9.148	56.12	I 58.93	15 59.11	I 4.60	I 5 2.44
9	I 10 41.06	41.33	7 30 5.9	7.5	9.158	55.81	I 42.05	15 58.83	I 4.64	I 8 59.00
10	I 14 21.00	21.23	7 52 21.7	23.1	9.170	55.49	I 25.44	15 58.56	I 4.68	I 12 55.55
11	I 18 1.21	1.40	+ 8 14 29.7	30.8	9.182	+ 55.16	+ I 9.10	15 58.29	I 4.72	I 16 52.10
12	I 21 41.74	41.89	8 36 29.4	30.3	9.195	54.81	0 53.07	15 58.02	I 4.76	I 20 48.66
13	I 25 22.58	22.70	8 58 20.7	21.3	9.209	54.45	0 37.37	15 57.75	I 4.81	I 24 45.21
14	I 29 3.76	3.85	9 20 3.1	3.5	9.223	54.08	0 22.00	15 57.48	I 4.86	I 28 41.76
15	I 32 45.30	45.35	9 41 36.3	36.5	9.238	53.68	+ 0 6.98	15 57.22	I 4.91	I 32 38.32
16	I 36 27.19	27.19	+ 10 2 59.9	59.8	9.253	+ 53.28	- 0 7.66	15 56.95	I 4.96	I 36 34.87
17	I 40 9.47	9.43	10 24 13.5	13.2	9.269	52.86	0 21.93	15 56.69	I 5.01	I 40 31.42
18	I 43 52.13	52.05	10 45 16.9	16.4	9.285	52.41	0 35.83	15 56.43	I 5.07	I 44 27.97
19	I 47 35.19	35.07	11 6 9.6	8.9	9.302	51.96	0 49.34	15 56.17	I 5.13	I 48 24.53
20	I 51 18.65	18.49	11 26 51.4	50.6	9.319	51.50	I 2.43	15 55.91	I 5.19	I 52 21.08
21	I 55 2.52	2.33	+ 11 47 21.9	20.9	9.337	+ 51.03	- I 15.11	15 55.65	I 5.25	I 56 17.63
22	I 58 46.81	46.59	12 7 40.7	39.5	9.355	50.53	I 27.38	15 55.39	I 5.31	2 0 14.19
23	2 2 31.53	31.28	12 27 47.5	46.1	9.373	50.02	I 39.21	15 55.13	I 5.37	2 4 10.74
24	2 6 16.69	16.41	12 47 41.8	40.3	9.391	49.50	I 50.60	15 54.88	I 5.44	2 8 7.30
25	2 10 2.29	1.98	13 7 23.6	22.0	9.410	48.96	2 1.52	15 54.63	I 5.51	2 12 3.85
26	2 13 48.38	48.04	+ 13 26 52.4	50.6	9.429	+ 48.42	- 2 12.01	15 54.38	I 5.58	2 16 0.40
27	2 17 34.92	34.55	13 46 7.8	5.9	9.449	47.86	2 22.02	15 54.13	I 5.66	2 19 56.96
28	2 21 21.96	21.56	14 5 9.7	7.7	9.470	47.29	2 31.53	15 53.88	I 5.73	2 23 53.51
29	2 25 9.48	9.06	14 23 57.6	55.5	9.491	46.70	2 40.56	15 53.64	I 5.81	2 27 50.06
30	2 28 57.52	57.08	14 42 31.2	29.1	9.513	46.10	2 49.08	15 53.40	I 5.89	2 31 46.62
May 1	2 32 46.07	45.61	+ 15 0 50.4	48.2	9.535	+ 45.49	- 2 57.07	15 53.16	I 5.97	2 35 43.17
2	2 36 35.16	34.68	15 18 54.7	52.4	9.557	44.86	3 4.54	15 52.93	I 6.05	2 39 39.73
3	2 40 24.79	24.29	15 36 43.8	41.5	9.579	44.22	3 11.47	15 52.70	I 6.13	2 43 36.28
4	2 44 14.96	14.44	15 54 17.5	15.1	9.602	43.57	3 17.86	15 52.47	I 6.21	2 47 32.84
5	2 48 5.69	5.15	16 11 35.4	33.0	9.625	42.92	3 23.68	15 52.24	I 6.29	2 51 29.39
6	2 51 56.99	56.43	+ 16 28 37.2	34.8	9.649	+ 42.24	- 3 28.93	15 52.02	I 6.37	2 55 25.94
7	2 55 48.87	48.29	16 45 22.7	20.2	9.673	41.55	3 33.62	15 51.79	I 6.45	2 59 22.50
8	2 59 41.32	40.73	17 1 51.5	49.0	9.697	40.85	3 37.72	15 51.57	I 6.53	3 3 19.06
9	3 3 34.36	33.76	17 18 3.3	0.8	9.722	40.14	3 41.23	15 51.35	I 6.61	3 7 15.61
10	3 7 27.98	27.37	17 33 57.9	55.4	9.746	39.41	3 44.16	15 51.13	I 6.69	3 11 12.16
11	3 11 22.21	21.59	+ 17 49 34.9	32.5	9.771	+ 38.67	- 3 46.50	15 50.92	I 6.77	3 15 8.72
12	3 15 17.03	16.41	18 4 54.1	51.7	9.796	37.92	3 48.24	15 50.71	I 6.85	3 19 5.28
13	3 19 12.45	11.82	18 19 55.2	52.8	9.821	37.16	3 49.37	15 50.50	I 6.93	3 23 1.83
14	3 23 8.46	7.83	18 34 37.8	35.5	9.845	36.38	3 49.93	15 50.30	I 7.01	3 26 58.39
15	3 27 5.06	4.43	18 48 61.7	59.4	9.870	35.60	3 49.87	15 50.10	I 7.09	3 30 54.94
16	3 31 2.24	1.61	+ 19 3 6.6	4.4	9.894	+ 34.81	- 3 49.25	15 49.91	I 7.18	3 34 51.50
17	3 34 60.00	59.37	+ 19 16 52.3	50.1	9.918	+ 34.00	- 3 48.05	15 49.71	I 7.27	3 38 48.05

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0.18 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ' "	"	s	"	m s	' "	m s	h m s
May 17	3 34 60.00	59.37	+ 19 16 52.3	50.1	9.918	+ 34.00	- 3 48.05	15 49.71	I 7.27	3 38 48.05
18	3 38 58.32	57.70	19 30 18.3	16.2	9.942	33.18	3 46.30	15 49.52	I 7.35	3 42 44.61
19	3 42 57.20	56.58	19 43 24.4	22.4	9.965	32.36	3 43.97	15 49.33	I 7.43	3 46 41.16
20	3 46 56.63	56.02	19 56 10.5	8.5	9.987	31.50	3 41.10	15 49.15	I 7.51	3 50 37.72
21	3 50 56.58	55.97	20 8 36.0	34.1	10.009	30.63	3 37.70	15 48.97	I 7.58	3 54 34.28
22	3 54 57.06	56.46	+ 20 20 41.0	39.2	10.030	+ 29.76	- 3 33.78	15 48.79	I 7.66	3 58 30.83
23	3 58 58.05	57.45	20 32 25.0	23.3	10.051	28.89	3 29.35	15 48.62	I 7.73	4 2 27.39
24	4 2 59.54	58.96	20 43 48.0	46.4	10.072	28.01	3 24.42	15 48.45	I 7.80	4 6 23.94
25	4 7 1.52	0.95	20 54 49.6	48.1	10.092	27.12	3 18.99	15 48.29	I 7.87	4 10 20.50
26	4 11 3.98	3.43	21 5 29.6	28.2	10.112	26.21	3 13.09	15 48.13	I 7.94	4 14 17.06
27	4 15 6.92	6.39	+ 21 15 47.7	46.4	10.132	+ 25.29	- 3 6.72	15 47.97	I 8.01	4 18 13.61
28	4 19 10.31	9.80	21 25 43.9	42.7	10.151	24.37	2 59.88	15 47.82	I 8.07	4 22 10.17
29	4 23 14.15	13.66	21 35 17.8	16.7	10.169	23.45	2 52.58	15 47.67	I 8.13	4 26 6.72
30	4 27 18.43	17.96	21 44 29.4	28.4	10.187	22.52	2 44.86	15 47.52	I 8.19	4 30 3.28
31	4 31 23.14	22.69	21 53 18.3	17.3	10.205	21.57	2 36.71	15 47.37	I 8.25	4 33 59.84
June 1	4 35 28.27	27.84	+ 22 1 44.4	43.5	10.222	+ 20.61	- 2 28.14	15 47.23	I 8.31	4 37 56.40
2	4 39 33.80	33.39	22 9 47.5	46.7	10.238	19.65	2 19.16	15 47.09	I 8.37	4 41 52.95
3	4 43 39.71	39.33	22 17 27.5	26.8	10.254	18.68	2 9.81	15 46.96	I 8.43	4 45 49.51
4	4 47 46.00	45.65	22 24 44.1	43.5	10.269	17.70	2 0.06	15 46.83	I 8.48	4 49 46.06
5	4 51 52.66	52.34	22 31 37.3	36.8	10.284	16.72	1 49.97	15 46.71	I 8.53	4 53 42.62
6	4 55 59.66	59.37	+ 22 38 6.8	6.5	10.299	+ 15.74	- 1 39.53	15 46.60	I 8.57	4 57 39.18
7	5 0 6.99	6.73	22 44 12.6	12.2	10.312	14.75	1 28.75	15 46.49	I 8.61	5 1 35.74
8	5 4 14.65	14.42	22 49 54.5	54.2	10.325	13.75	1 17.65	15 46.38	I 8.65	5 5 32.29
9	5 8 22.60	22.39	22 55 12.4	12.2	10.337	12.74	1 6.27	15 46.27	I 8.69	5 9 28.85
10	5 12 30.82	30.65	23 0 6.1	5.9	10.348	11.73	0 54.60	15 46.16	I 8.72	5 13 25.41
11	5 16 39.30	39.17	+ 23 4 35.5	35.2	10.358	+ 10.72	- 0 42.67	15 46.06	I 8.75	5 17 21.96
12	5 20 48.02	47.92	23 8 40.6	40.5	10.368	9.70	0 30.50	15 45.96	I 8.78	5 21 18.52
13	5 24 56.95	56.89	23 12 21.3	21.2	10.376	8.68	0 18.12	15 45.87	I 8.81	5 25 15.08
14	5 29 6.06	6.03	23 15 37.3	37.3	10.383	7.66	- 0 5.57	15 45.78	I 8.83	5 29 11.63
15	5 33 15.33	15.34	23 18 28.8	28.8	10.389	6.63	+ 0 7.13	15 45.70	I 8.85	5 33 8.19
16	5 37 24.72	24.77	+ 23 20 55.6	55.6	10.394	+ 5.60	+ 0 19.97	15 45.63	I 8.87	5 37 4.75
17	5 41 34.21	34.30	23 22 57.7	57.7	10.397	4.57	0 32.91	15 45.56	I 8.88	5 41 1.30
18	5 45 43.79	43.92	23 24 35.1	35.1	10.399	3.54	0 45.94	15 45.49	I 8.89	5 44 57.86
19	5 49 53.40	53.57	23 25 47.8	47.8	10.400	2.51	0 58.98	15 45.43	I 8.89	5 48 54.42
20	5 54 3.03	3.24	23 26 35.6	35.6	10.401	1.48	1 12.05	15 45.37	I 8.89	5 52 50.98
21	5 58 12.65	12.89	+ 23 26 58.7	58.7	10.400	+ 0.45	+ 1 25.12	15 45.31	I 8.89	5 56 47.54
22	6 2 22.22	22.50	23 26 57.0	57.0	10.398	- 0.59	1 38.14	15 45.26	I 8.89	6 0 44.09
23	6 6 31.74	32.06	23 26 30.5	30.5	10.395	1.62	1 51.11	15 45.21	I 8.88	6 4 40.65
24	6 10 41.18	41.54	23 25 39.3	39.1	10.391	2.65	2 3.99	15 45.16	I 8.87	6 8 37.21
25	6 14 50.50	50.89	23 24 23.3	23.1	10.386	3.68	2 16.76	15 45.12	I 8.86	6 12 33.76
26	6 18 59.70	60.13	+ 23 22 42.7	42.5	10.381	- 4.71	+ 2 29.40	15 45.09	I 8.85	6 16 30.32
27	6 23 8.76	9.22	23 20 37.4	37.2	10.374	5.73	2 41.90	15 45.06	I 8.83	6 20 26.88
28	6 27 17.64	18.14	23 18 7.6	7.3	10.366	6.76	2 54.23	15 45.04	I 8.80	6 24 23.43
29	6 31 26.32	26.86	23 15 13.3	12.9	10.358	7.78	3 6.36	15 45.02	I 8.77	6 28 19.99
30	6 35 34.80	35.37	23 11 54.4	53.9	10.349	8.80	3 18.27	15 45.00	I 8.74	6 32 16.55
31	6 39 43.04	43.64	+ 23 8 11.2	10.6	10.339	- 9.81	+ 3 29.96	15 44.99	I 8.71	6 36 13.11
32	6 43 51.03	51.66	+ 23 4 3.8	3.2	10.328	- 10.81	+ 3 41.41	15 44.98	I 8.67	6 40 9.66

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0.19 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semi-d. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ' "	"	s	"	m s	"	m s	h m s
July 1	6 39 43.04	43.64	+ 23 8 11.2	10.6	10.339	- 9.81	+ 3 29.96	15 44.99	1 8.71	6 36 13.11
2	6 43 51.03	51.66	23 4 3.8	3.2	10.328	10.81	3 41.41	15 44.98	1 8.67	6 40 9.66
3	6 47 58.76	59.42	22 59 32.1	31.4	10.316	11.82	3 52.58	15 44.98	1 8.63	6 44 6.22
4	6 52 6.21	6.90	22 54 36.5	35.7	10.304	12.82	4 3.47	15 44.98	1 8.59	6 48 2.78
5	6 56 13.36	14.08	22 49 16.8	15.8	10.291	13.82	4 14.06	15 44.98	1 8.55	6 51 59.33
6	7 0 20.20	20.95	+ 22 43 33.3	32.2	10.278	- 14.81	+ 4 24.34	15 44.99	1 8.50	6 55 55.89
7	7 4 26.71	27.49	22 37 26.0	24.8	10.264	15.79	4 34.30	15 45.00	1 8.45	6 59 52.45
8	7 8 32.85	33.66	22 30 55.2	53.9	10.249	16.77	4 43.88	15 45.01	1 8.40	7 3 49.00
9	7 12 38.64	39.47	22 23 61.0	59.6	10.234	17.75	4 53.11	15 45.03	1 8.34	7 7 45.56
10	7 16 44.05	44.91	22 16 43.5	41.9	10.217	18.71	5 1.97	15 45.07	1 8.28	7 11 42.12
11	7 20 49.06	49.94	+ 22 9 3.0	1.3	10.200	- 19.66	+ 5 10.42	15 45.11	1 8.22	7 15 38.67
12	7 24 53.65	54.55	22 0 59.5	57.7	10.182	20.61	5 18.45	15 45.15	1 8.16	7 19 35.23
13	7 28 57.79	58.71	21 52 33.3	31.4	10.163	21.56	5 26.04	15 45.19	1 8.09	7 23 31.79
14	7 33 1.48	2.42	21 43 44.6	42.5	10.144	22.49	5 33.17	15 45.23	1 8.03	7 27 28.34
15	7 37 4.70	5.65	21 34 33.6	31.4	10.124	23.42	5 39.82	15 45.28	1 7.96	7 31 24.90
16	7 41 7.42	8.39	+ 21 24 60.6	58.3	10.102	- 24.33	+ 5 45.99	15 45.33	1 7.89	7 35 21.46
17	7 45 9.63	10.62	21 15 5.7	3.3	10.080	25.23	5 51.65	15 45.39	1 7.82	7 39 18.01
18	7 49 11.31	12.30	21 4 49.3	46.7	10.058	26.13	5 56.76	15 45.45	1 7.75	7 43 14.57
19	7 53 12.44	13.44	20 54 11.5	8.8	10.035	27.02	6 1.33	15 45.52	1 7.67	7 47 11.12
20	7 57 13.02	14.03	20 43 12.6	9.8	10.012	27.89	6 5.36	15 45.60	1 7.59	7 51 7.68
21	8 1 13.03	14.05	+ 20 31 52.8	49.9	9.988	- 28.75	+ 6 8.80	15 45.68	1 7.51	7 55 4.24
22	8 5 12.46	13.49	20 20 12.4	9.4	9.964	29.60	6 11.68	15 45.76	1 7.43	7 59 0.79
23	8 9 11.30	12.33	20 8 11.6	8.5	9.940	30.45	6 13.97	15 45.84	1 7.35	8 2 57.35
24	8 13 9.56	10.59	19 55 50.7	47.5	9.915	31.28	6 15.66	15 45.93	1 7.27	8 6 53.90
25	8 17 7.21	8.24	19 43 9.9	6.6	9.890	32.12	6 16.75	15 46.02	1 7.18	8 10 50.46
26	8 21 4.25	5.28	+ 19 30 9.4	6.0	9.865	- 32.92	+ 6 17.24	15 46.12	1 7.10	8 14 47.02
27	8 25 0.69	1.72	19 16 49.6	46.1	9.840	33.72	6 17.10	15 46.22	1 7.01	8 18 43.57
28	8 28 56.52	57.55	19 3 10.6	7.0	9.814	34.51	6 16.37	15 46.32	1 6.93	8 22 40.13
29	8 32 51.73	52.75	18 49 12.9	9.2	9.789	35.29	6 15.04	15 46.43	1 6.84	8 26 36.68
30	8 36 46.33	47.35	18 34 56.5	52.8	9.763	36.06	6 13.09	15 46.54	1 6.76	8 30 33.24
31	8 40 40.34	41.35	+ 18 20 21.9	18.1	9.738	- 36.82	+ 6 10.53	15 46.66	1 6.67	8 34 29.79
Aug. 1	8 44 33.73	34.73	18 5 29.1	25.3	9.713	37.57	6 7.37	15 46.78	1 6.59	8 38 26.35
2	8 48 26.53	27.52	17 50 18.7	14.8	9.688	38.30	6 3.61	15 46.91	1 6.50	8 42 22.90
3	8 52 18.74	19.71	17 34 50.7	46.8	9.663	39.02	5 59.26	15 47.04	1 6.41	8 46 19.46
4	8 56 10.35	11.30	17 19 5.6	1.7	9.638	39.74	5 54.32	15 47.17	1 6.32	8 50 16.01
5	9 0 1.37	2.31	+ 17 2 63.4	59.5	9.614	- 40.44	+ 5 48.78	15 47.31	1 6.23	8 54 12.57
6	9 3 51.83	52.75	16 46 44.4	40.5	9.590	41.13	5 42.68	15 47.45	1 6.14	8 58 9.12
7	9 7 41.70	42.60	16 30 9.2	5.3	9.566	41.80	5 36.00	15 47.59	1 6.05	9 2 5.68
8	9 11 31.01	31.89	16 13 17.9	14.0	9.542	42.47	5 28.75	15 47.74	1 5.97	9 6 2.23
9	9 15 19.75	20.61	15 56 10.9	7.1	9.519	43.11	5 20.93	15 47.89	1 5.88	9 9 58.79
10	9 19 7.93	8.77	+ 15 38 48.4	44.6	9.496	- 43.74	+ 5 12.56	15 48.05	1 5.80	9 13 55.34
11	9 22 55.55	56.37	15 21 10.8	7.0	9.473	44.36	5 3.63	15 48.22	1 5.72	9 17 51.90
12	9 26 42.62	43.41	15 3 18.5	14.8	9.450	44.98	4 54.14	15 48.38	1 5.64	9 21 48.45
13	9 30 29.13	29.89	14 45 11.6	8.0	9.427	45.58	4 44.10	15 48.55	1 5.56	9 25 45.00
14	9 34 15.10	15.83	14 26 50.7	47.2	9.404	46.16	4 33.50	15 48.72	1 5.48	9 29 41.56
15	9 38 0.52	1.22	+ 14 8 16.0	12.6	9.381	- 46.73	+ 4 22.38	15 48.89	1 5.41	9 33 38.11
16	9 41 45.41	46.07	+ 13 49 27.9	24.6	9.359	- 47.28	+ 4 10.70	15 49.07	1 5.33	9 37 34.67

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0.19 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ' "	"	s	"	m s	' "	m s	h m s
Aug. 16	9 41 45.41	46.07	+ 13 49 27.9	24.6	9.359	-47.28	+ 4 10.70	15 49.07	1 5.33	9 37 34.67
17	9 45 29.75	30.38	13 30 26.5	23.3	9.337	47.82	3 58.49	15 49.25	1 5.26	9 41 31.22
18	9 49 13.59	14.18	13 11 12.4	9.3	9.316	48.35	3 45.77	15 49.44	1 5.18	9 45 27.77
19	9 52 56.90	57.46	12 51 45.7	42.8	9.295	48.87	3 32.53	15 49.63	1 5.11	9 49 24.33
20	9 56 39.71	40.23	12 32 6.9	4.1	9.274	49.36	3 18.80	15 49.82	1 5.04	9 53 20.88
21	10 0 22.03	22.51	+ 12 12 16.2	13.6	9.254	-49.85	+ 3 4.57	15 50.01	1 4.97	9 57 17.44
22	10 4 3.87	4.31	11 52 14.0	11.6	9.234	50.32	2 49.85	15 50.21	1 4.91	10 1 13.99
23	10 7 45.23	45.63	11 31 60.6	58.4	9.215	50.78	2 34.65	15 50.41	1 4.84	10 5 10.54
24	10 11 26.15	26.51	11 11 36.3	34.3	9.196	51.24	2 19.02	15 50.62	1 4.78	10 9 7.10
25	10 15 6.62	6.94	10 50 61.5	59.7	9.178	51.68	2 2.95	15 50.82	1 4.71	10 13 3.65
26	10 18 46.67	46.95	+ 10 30 16.4	14.8	9.160	-52.11	+ 1 46.45	15 51.03	1 4.65	10 17 0.20
27	10 22 26.31	26.55	10 9 21.4	20.0	9.144	52.50	1 29.53	15 51.25	1 4.59	10 20 56.75
28	10 26 5.56	5.75	9 48 16.7	15.6	9.128	52.89	1 12.22	15 51.47	1 4.53	10 24 53.31
29	10 29 44.44	44.57	9 27 2.5	1.6	9.113	53.27	0 54.55	15 51.69	1 4.48	10 28 49.86
30	10 33 22.96	23.06	9 5 39.4	38.8	9.099	53.65	0 36.54	15 51.91	1 4.43	10 32 46.41
31	10 37 1.15	1.21	+ 8 44 7.5	7.2	9.085	-54.01	+ 0 18.18	15 52.13	1 4.38	10 36 42.97
Sept. 1	10 40 39.03	39.04	8 22 27.0	27.0	9.072	54.35	- 0 0.49	15 52.36	1 4.33	10 40 39.52
2	10 44 16.63	16.59	8 0 38.5	38.7	9.061	54.68	0 19.43	15 52.59	1 4.28	10 44 36.07
3	10 47 53.95	53.86	7 38 42.0	42.5	9.050	55.01	0 38.67	15 52.83	1 4.24	10 48 32.62
4	10 51 31.03	30.89	7 16 38.0	38.8	9.040	55.31	0 58.14	15 53.06	1 4.20	10 52 29.18
5	10 55 7.88	7.69	+ 6 54 26.8	27.9	9.031	-55.61	- 1 17.82	15 53.30	1 4.17	10 56 25.73
6	10 58 44.52	44.28	6 32 8.6	10.0	9.022	55.89	1 37.74	15 53.54	1 4.14	11 0 22.28
7	11 2 20.96	20.67	6 9 44.0	45.8	9.015	56.16	1 57.85	15 53.78	1 4.11	11 4 18.84
8	11 5 57.22	56.88	5 47 13.1	15.2	9.008	56.41	2 18.13	15 54.02	1 4.09	11 8 15.39
9	11 9 33.33	32.94	5 24 36.4	38.8	9.002	56.65	2 38.57	15 54.26	1 4.07	11 12 11.94
10	11 13 9.29	8.85	+ 5 1 54.1	56.9	8.996	-56.86	- 2 59.16	15 54.51	1 4.04	11 16 8.49
11	11 16 45.11	44.62	4 39 6.7	9.8	8.990	57.07	3 19.87	15 54.76	1 4.02	11 20 5.04
12	11 20 20.83	20.29	4 16 14.4	17.8	8.986	57.27	3 40.70	15 55.01	1 4.00	11 24 1.60
13	11 23 56.45	55.86	3 53 17.6	21.4	8.982	57.45	4 1.63	15 55.27	1 3.99	11 27 58.15
14	11 27 31.97	31.33	3 30 16.7	20.8	8.979	57.61	4 22.66	15 55.53	1 3.98	11 31 54.70
15	11 31 7.44	6.75	+ 3 7 12.0	16.5	8.977	-57.77	- 4 43.74	15 55.79	1 3.97	11 35 51.25
16	11 34 42.86	42.12	2 44 3.9	8.7	8.975	57.91	5 4.88	15 56.05	1 3.97	11 39 47.80
17	11 38 18.25	17.45	2 20 52.7	57.9	8.974	58.02	5 26.03	15 56.31	1 3.97	11 43 44.36
18	11 41 53.62	52.77	1 57 38.7	44.2	8.974	58.13	5 47.22	15 56.57	1 3.97	11 47 40.91
19	11 45 28.99	28.09	1 34 22.3	28.2	8.974	58.23	6 8.38	15 56.83	1 3.97	11 51 37.46
20	11 49 4.39	3.44	+ 1 11 3.9	10.1	8.976	-58.30	- 6 29.54	15 57.09	1 3.98	11 55 34.01
21	11 52 39.83	38.82	0 47 43.8	50.4	8.979	58.37	6 50.64	15 57.36	1 3.99	11 59 30.56
22	11 56 15.33	14.27	0 24 22.1	29.0	8.982	58.42	7 11.68	15 57.63	1 4.00	12 3 27.12
23	11 59 50.92	49.81	+ 0 0 59.5	66.8	8.985	58.46	7 32.63	15 57.90	1 4.02	12 7 23.67
24	12 3 26.60	25.44	- 0 22 23.8	16.2	8.990	58.48	7 53.51	15 58.17	1 4.04	12 11 20.22
25	12 7 2.42	1.20	- 0 45 47.6	39.6	8.996	-58.49	- 8 14.23	15 58.44	1 4.06	12 15 16.77
26	12 10 38.40	37.13	1 9 11.4	3.1	9.003	58.48	8 34.81	15 58.71	1 4.09	12 19 13.33
27	12 14 14.54	13.21	1 32 35.2	26.6	9.011	58.47	8 55.22	15 58.99	1 4.12	12 23 9.88
28	12 17 50.89	49.51	1 55 58.3	49.3	9.020	58.44	9 15.41	15 59.26	1 4.15	12 27 6.43
29	12 21 27.46	26.02	2 19 20.5	11.2	9.029	58.40	9 35.39	15 59.54	1 4.18	12 31 2.98
30	12 25 4.27	2.78	- 2 42 41.4	31.8	9.040	-58.35	- 9 55.13	15 59.81	1 4.22	12 34 59.53
31	12 28 41.36	39.82	- 3 5 60.8	50.9	9.051	-58.27	- 10 14.59	16 0.09	1 4.26	12 38 56.09

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0.18 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.			Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.		Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s		° ' "	"	s	"	m s	' "	m s	h m s
Oct.	1	12 28 41.36	39.82	— 3 5 60.8	50.9	9.051	—58.27	—10 14.59	16 0.09	1 4.26	12 38 56.09
	2	12 32 18.76	17.17	3 29 18.3	8.1	9.065	58.18	10 33.75	16 0.36	1 4.30	12 42 52.64
	3	12 35 56.48	54.84	3 52 33.6	23.1	9.079	58.09	10 52.58	16 0.64	1 4.35	12 46 49.19
	4	12 39 34.53	32.84	4 15 46.3	35.5	9.094	57.97	11 11.06	16 0.91	1 4.40	12 50 45.74
	5	12 43 12.96	11.23	4 38 56.0	45.0	9.109	57.84	11 29.19	16 1.19	1 4.45	12 54 42.30
	6	12 46 51.77	49.99	— 5 1 62.5	51.2	9.126	—57.69	—11 46.93	16 1.46	1 4.50	12 58 38.85
	7	12 50 30.98	29.15	5 24 65.1	53.6	9.143	—57.52	12 4.27	16 1.74	1 4.56	13 2 35.40
	8	12 54 10.61	8.73	5 47 63.8	52.0	9.161	57.34	12 21.20	16 2.01	1 4.62	13 6 31.95
	9	12 57 50.69	48.77	6 10 57.9	45.9	9.179	57.16	12 37.67	16 2.29	1 4.69	13 10 28.50
	10	13 1 31.22	29.25	6 33 47.4	35.2	9.198	56.95	12 53.70	16 2.57	1 4.76	13 14 25.06
	11	13 5 12.21	10.20	— 6 56 31.5	19.1	9.218	—56.72	—13 9.26	16 2.85	1 4.83	13 18 21.61
	12	13 8 53.69	51.64	7 18 69.9	57.3	9.238	56.48	13 24.33	16 3.13	1 4.90	13 22 18.16
	13	13 12 35.67	33.58	7 41 42.4	29.6	9.260	56.22	13 38.90	16 3.40	1 4.98	13 26 14.71
	14	13 16 18.17	16.03	8 3 68.5	55.6	9.282	55.96	13 52.96	16 3.68	1 5.06	13 30 11.27
	15	13 19 61.21	59.03	8 26 27.8	14.7	9.304	55.66	14 6.48	16 3.95	1 5.14	13 34 7.82
	16	13 23 44.79	42.57	— 8 48 39.9	26.7	9.327	—55.35	—14 19.46	16 4.23	1 5.22	13 38 4.37
	17	13 27 28.93	26.67	9 10 44.4	31.1	9.351	55.02	14 31.88	16 4.50	1 5.31	13 42 0.92
	18	13 31 13.64	11.34	9 32 41.0	27.6	9.375	54.68	14 43.71	16 4.77	1 5.39	13 45 57.48
	19	13 34 58.95	56.62	9 54 29.1	15.6	9.400	54.32	14 54.96	16 5.04	1 5.48	13 49 54.03
	20	13 38 44.87	42.51	10 15 68.5	54.9	9.426	53.95	15 5.59	16 5.31	1 5.57	13 53 50.58
	21	13 42 31.41	29.02	—10 37 38.8	25.2	9.453	—53.56	—15 15.62	16 5.58	1 5.67	13 57 47.14
	22	13 46 18.59	16.17	10 58 59.6	45.9	9.480	53.16	15 25.00	16 5.85	1 5.76	14 1 43.69
	23	13 50 6.43	3.98	11 19 70.4	56.7	9.507	52.74	15 33.73	16 6.12	1 5.86	14 5 40.24
	24	13 53 54.93	52.45	11 40 71.0	57.3	9.535	52.29	15 41.77	16 6.38	1 5.96	14 9 36.80
	25	13 57 44.12	41.61	12 1 60.7	47.0	9.564	51.84	15 49.15	16 6.64	1 6.07	14 13 33.35
	26	14 1 34.01	31.47	—12 22 39.4	25.8	9.594	—51.38	—15 55.81	16 6.90	1 6.17	14 17 29.90
	27	14 5 24.63	22.06	12 42 66.7	53.1	9.625	50.89	16 1.75	16 7.16	1 6.28	14 21 26.46
	28	14 9 15.99	13.39	13 3 22.2	8.5	9.656	50.39	16 6.96	16 7.42	1 6.38	14 25 23.01
	29	14 13 8.11	5.49	13 23 25.4	11.8	9.688	49.87	16 11.39	16 7.67	1 6.49	14 29 19.56
	30	14 16 61.02	58.38	13 43 16.1	2.6	9.721	49.33	16 15.06	16 7.93	1 6.60	14 33 16.12
	31	14 20 54.71	52.05	—14 2 53.6	40.2	9.754	—48.79	—16 17.94	16 8.18	1 6.71	14 37 12.67
Nov.	1	14 24 49.20	46.53	14 22 17.8	4.5	9.788	48.22	16 20.00	16 8.43	1 6.83	14 41 9.23
	2	14 28 44.51	41.83	14 41 28.3	14.9	9.822	47.63	16 21.26	16 8.68	1 6.94	14 45 5.78
	3	14 32 40.65	37.96	15 0 24.5	11.5	9.856	47.03	16 21.68	16 8.93	1 7.06	14 49 2.34
	4	14 36 37.63	34.93	15 18 66.1	53.3	9.891	46.42	16 21.27	16 9.17	1 7.17	14 52 58.89
	5	14 40 35.44	32.74	—15 37 32.6	20.0	9.926	—45.78	—16 20.02	16 9.41	1 7.29	14 56 55.44
	6	14 44 34.10	31.39	15 55 43.6	31.2	9.961	45.13	16 17.93	16 9.65	1 7.41	15 0 52.00
	7	14 48 33.60	30.89	16 13 38.9	26.6	9.997	44.45	16 14.99	16 9.89	1 7.53	15 4 48.55
	8	14 52 33.96	31.26	16 31 17.7	5.7	10.032	43.77	16 11.20	16 10.12	1 7.65	15 8 45.11
	9	14 56 35.18	32.48	16 48 39.8	28.1	10.068	43.07	16 6.54	16 10.35	1 7.76	15 12 41.66
	10	15 0 37.23	34.54	—17 5 45.0	33.5	10.103	—42.34	—16 1.05	16 10.58	1 7.89	15 16 38.22
	11	15 4 40.15	37.46	17 22 32.4	21.2	10.139	41.60	15 54.70	16 10.81	1 8.01	15 20 34.77
	12	15 8 43.91	41.23	17 38 62.0	51.1	10.174	40.85	15 47.50	16 11.03	1 8.13	15 24 31.33
	13	15 12 48.51	45.84	17 55 13.2	2.6	10.209	40.07	15 39.46	16 11.25	1 8.25	15 28 27.88
	14	15 16 53.96	51.30	18 10 65.6	55.3	10.244	39.29	15 30.58	16 11.47	1 8.37	15 32 24.44
	15	15 20 60.25	57.61	—18 26 39.0	29.0	10.279	—38.48	—15 20.83	16 11.68	1 8.49	15 36 20.99
	16	15 25 7.35	4.73	—18 41 52.7	43.1	10.313	—37.66	—15 10.30	16 11.89	1 8.61	15 40 17.55

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0.18 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi- diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declina.				
	h m s	s	° ' "	"	s	"	m s	' "	m s	h m s
Nov. 16	15 25 7.35	4.73	18 41 52.7	43.1	10.313	-37.66	15 10.30	16 11.89	I 8.61	15 40 17.55
17	15 29 15.30	12.70	18 56 46.5	37.3	10.347	36.83	14 58.92	16 12.10	I 8.72	15 44 14.10
18	15 33 24.06	21.49	19 11 20.0	11.1	10.381	35.97	14 46.72	16 12.30	I 8.84	15 48 10.66
19	15 37 33.63	31.09	19 25 32.8	24.1	10.415	35.10	14 33.73	16 12.50	I 8.95	15 52 7.22
20	15 41 44.00	41.50	19 39 24.5	16.2	10.449	34.21	14 19.92	16 12.70	I 9.06	15 56 3.77
21	15 45 55.17	52.71	19 52 54.8	46.8	10.482	-33.31	14 5.30	16 12.90	I 9.17	16 0 0.33
22	15 50 7.11	4.69	20 5 63.3	55.7	10.514	32.39	13 49.92	16 13.09	I 9.28	16 3 56.88
23	15 54 19.84	17.46	20 18 49.6	42.3	10.546	31.46	13 33.77	16 13.28	I 9.39	16 7 53.44
24	15 58 33.33	30.99	20 31 13.3	6.5	10.578	30.52	13 16.83	16 13.46	I 9.49	16 11 50.00
25	16 2 47.58	45.28	20 43 14.4	7.9	10.610	29.56	12 59.13	16 13.64	I 9.60	16 15 46.55
26	16 7 2.59	0.33	20 54 52.2	46.1	10.641	-28.59	12 40.68	16 13.82	I 9.70	16 19 43.11
27	16 11 18.34	16.13	21 6 6.6	0.7	10.672	27.61	12 21.49	16 13.99	I 9.81	16 23 39.66
28	16 15 34.83	32.67	21 16 57.1	51.6	10.702	26.60	12 1.56	16 14.15	I 9.91	16 27 36.22
29	16 19 52.04	49.94	21 27 23.6	18.5	10.732	25.59	11 40.91	16 14.31	I 10.01	16 31 32.78
30	16 24 9.95	7.91	21 37 25.6	20.8	10.761	24.57	11 19.55	16 14.47	I 10.10	16 35 29.34
Dec. 1	16 28 28.55	26.57	21 46 62.9	58.3	10.789	-23.54	10 57.51	16 14.62	I 10.19	16 39 25.89
2	16 32 47.82	45.90	21 56 15.1	11.0	10.816	22.48	10 34.79	16 14.77	I 10.27	16 43 22.45
3	16 37 7.74	5.88	22 4 62.1	58.3	10.842	21.41	10 11.44	16 14.92	I 10.35	16 47 19.00
4	16 41 28.28	26.49	22 13 23.5	20.0	10.867	20.33	9 47.45	16 15.06	I 10.43	16 51 15.56
5	16 45 49.43	47.71	22 21 19.1	15.9	10.892	19.25	9 22.85	16 15.20	I 10.50	16 55 12.12
6	16 50 11.14	9.49	22 28 48.6	45.7	10.916	18.17	8 57.71	16 15.34	I 10.57	16 59 8.68
7	16 54 33.39	31.81	22 35 51.9	49.3	10.937	17.07	8 32.00	16 15.47	I 10.64	17 3 5.23
8	16 58 56.16	54.66	22 42 28.5	26.2	10.958	15.97	8 5.80	16 15.59	I 10.71	17 7 1.79
9	17 3 19.41	17.99	22 48 38.5	36.4	10.978	14.85	7 39.09	16 15.70	I 10.78	17 10 58.35
10	17 7 43.11	41.77	22 54 21.4	19.6	10.996	13.72	7 11.94	16 15.81	I 10.84	17 14 54.90
11	17 12 7.23	5.97	22 59 37.2	35.6	11.012	-12.58	6 44.37	16 15.92	I 10.89	17 18 51.46
12	17 16 31.73	30.56	23 4 25.7	24.5	11.028	11.44	6 16.42	16 16.03	I 10.94	17 22 48.02
13	17 20 56.59	55.50	23 8 46.6	45.6	11.042	10.29	5 48.11	16 16.13	I 10.99	17 26 44.58
14	17 25 21.76	20.75	23 12 40.0	39.2	11.054	9.14	5 19.47	16 16.23	I 11.03	17 30 41.13
15	17 29 47.22	46.30	23 16 5.6	4.9	11.065	7.98	4 50.56	16 16.32	I 11.07	17 34 37.69
16	17 34 12.91	12.08	23 19 3.3	2.8	11.075	-6.82	4 21.41	16 16.41	I 11.10	17 38 34.25
17	17 38 38.82	38.08	23 21 33.1	32.7	11.082	5.66	3 52.06	16 16.49	I 11.13	17 42 30.81
18	17 43 4.90	4.25	23 23 34.8	34.5	11.089	4.49	3 22.53	16 16.57	I 11.15	17 46 27.36
19	17 47 31.12	30.56	23 25 8.5	8.3	11.094	3.32	2 52.86	16 16.64	I 11.17	17 50 23.92
20	17 51 57.45	56.99	23 26 13.9	13.8	11.099	2.14	2 23.09	16 16.71	I 11.18	17 54 20.48
21	17 56 23.84	23.47	23 26 51.0	51.0	11.101	-0.97	1 53.23	16 16.77	I 11.19	17 58 17.04
22	18 0 50.27	49.99	23 27 0.0	0.0	11.102	+0.21	1 23.34	16 16.83	I 11.20	18 2 13.59
23	18 5 16.72	16.53	23 26 40.6	40.6	11.102	1.39	0 53.45	16 16.88	I 11.20	18 6 10.15
24	18 9 43.15	43.06	23 25 53.0	53.0	11.100	2.57	0 23.57	16 16.92	I 11.20	18 10 6.71
25	18 14 9.52	9.52	23 24 37.1	37.1	11.097	3.75	+0 6.25	16 16.96	I 11.19	18 14 3.27
26	18 18 35.82	35.91	23 22 52.9	52.9	11.093	+4.93	+0 36.00	16 17.00	I 11.18	18 17 59.82
27	18 23 2.00	2.18	23 20 40.6	40.5	11.088	6.10	1 5.64	16 17.04	I 11.16	18 21 56.38
28	18 27 28.05	28.32	23 17 60.1	59.9	11.083	7.27	1 35.14	16 17.07	I 11.14	18 25 52.94
29	18 31 53.94	54.30	23 14 51.5	51.2	11.075	8.44	2 4.48	16 17.09	I 11.11	18 29 49.50
30	18 36 19.64	20.09	23 11 14.9	14.5	11.066	9.61	2 33.66	16 17.11	I 11.08	18 33 46.05
31	18 40 45.11	45.64	23 7 10.5	10.0	11.056	+10.77	+3 2.62	16 17.12	I 11.05	18 37 42.61
32	18 45 10.34	10.97	23 2 38.2	37.5	11.046	+11.93	+3 31.24	16 17.13	I 11.01	18 41 39.17

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0°.19 from the sidereal interval.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi- diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ' "	"	s	"	"	
Jan. 1	9 23.54	2.429	4 7 41.92	155.99	+ 20 42 25.2	+ 215.3	71.82	16 5.8	58 58.2	I. S.
2	10 21.95	2.427	5 10 12.58	155.88	21 25 28.8	— 0.7	71.73	16 0.1	58 37.1	I. S.
3	11 19.53	2.361	6 11 53.45	151.89	20 43 1.2	— 208.1	70.73	15 52.3	58 8.1	I. S.
4	12 14.88	2.245	7 11 19.78	144.94	18 43 1.1	— 385.4	69.02	15 42.6	57 32.8	II. S.
5	13 7.13	2.108	8 7 39.87	136.68	15 40 19.4	— 520.5	66.97	15 31.8	56 53.4	II. S.
6	13 56.10	1.976	9 0 42.88	128.73	+ 11 52 29.5	— 611.4	64.98	15 20.9	56 13.0	II. S.
7	14 42.16	1.867	9 50 50.54	122.20	7 36 22.7	— 663.0	63.32	15 10.5	55 34.6	II. S.
8	15 25.99	1.790	10 38 44.10	117.61	+ 3 6 25.3	— 681.9	62.15	15 1.4	55 1.4	II. S.
9	16 8.43	1.751	11 25 13.80	115.22	— 1 25 38.0	— 674.4	61.55	14 54.4	54 35.6	II. S.
10	16 50.34	1.748	12 11 12.33	115.01	— 5 50 7.4	— 644.6	61.54	14 49.9	54 19.1	II. S.
11	17 32.60	1.779	12 57 31.41	116.91	— 9 58 32.7	— 594.0	62.09	14 48.4	54 13.5	II. S.
12	18 16.01	1.842	13 44 59.19	120.69	— 13 42 33.0	— 522.2	63.11	14 49.9	54 19.0	II. S.
13	19 1.23	1.930	14 34 16.83	125.99	— 16 53 10.6	— 426.7	64.49	14 54.4	54 35.7	II. S.
14	19 48.77	2.032	15 25 53.40	132.15	— 19 20 23.5	— 304.8	66.05	15 1.8	55 2.7	II. S.
15	20 38.78	2.133	16 19 58.85	138.22	— 20 53 23.5	— 155.7	67.54	15 11.5	55 38.3	II. S.
16	21 31.01	2.214	17 16 17.95	143.09	— 21 21 49.5	+ 17.0	68.69	15 22.8	56 20.1	II. S.
17	22 24.79	2.260	18 14 10.07	145.84	— 20 37 57.6	203.6	69.30	15 34.9	57 4.7	II. S.
18	23 19.18	2.266	19 12 38.83	146.16	— 18 39 9.3	388.8	69.33	15 46.9	57 48.6	
20	0 13.27	2.238	20 10 49.83	144.51	— 15 29 31.4	554.8	68.90	15 57.6	58 28.0	
21	1 6.49	2.196	21 8 7.89	141.95	— 11 19 54.9	686.3	68.28	16 6.2	58 59.6	I. S.
22	1 58.69	2.157	22 4 25.45	139.65	— 6 26 27.0	+ 772.9	67.76	16 12.2	59 21.3	I. S.
23	2 50.19	2.139	23 0 0.59	138.53	— 1 8 19.9	809.2	67.52	16 15.1	59 32.5	I. S.
24	3 41.58	2.148	23 55 28.63	139.11	+ 4 14 3.0	794.3	67.72	16 15.5	59 33.8	I. S.
25	4 33.54	2.187	0 51 31.55	141.42	9 20 25.9	729.5	68.36	16 13.6	59 26.6	I. S.
26	5 26.70	2.246	1 48 46.32	144.99	13 51 27.9	618.1	69.29	16 10.0	59 13.2	I. S.
27	6 21.39	2.310	2 47 32.98	148.85	+ 17 29 26.4	+ 465.4	70.24	16 5.0	58 55.1	I. S.
28	7 17.47	2.358	3 47 43.59	151.73	19 59 29.6	280.4	70.90	15 59.1	58 33.5	I. S.
29	8 14.27	2.368	4 48 37.75	152.31	21 11 30.1	+ 78.0	70.99	15 52.6	58 9.5	I. S.
30	9 10.72	2.328	5 49 10.38	149.91	21 2 2.4	— 123.6	70.35	15 45.5	57 43.3	I. S.
31	10 5.64	2.243	6 48 11.58	144.83	19 35 14.6	— 305.8	69.03	15 37.8	57 14.9	I. N. S.
Feb. 1	10 58.18	2.132	7 44 48.70	138.12	+ 17 1 43.3	— 455.5	67.29	15 29.5	56 44.7	I. S.
2	11 47.93	2.015	8 38 38.69	131.09	13 36 2.3	— 566.2	65.47	15 21.0	56 13.6	I. S.
3	12 35.01	1.911	9 29 47.43	124.83	9 33 56.9	— 637.9	63.84	15 12.6	55 42.6	II. S.
4	13 19.85	1.830	10 18 41.82	119.98	5 10 24.4	— 674.3	62.57	15 4.6	55 13.2	II. S.
5	14 3.10	1.779	11 6 0.59	116.90	+ 0 38 36.9	— 680.0	61.79	14 57.6	54 47.4	II. S.
6	14 45.49	1.759	11 52 27.72	115.68	— 3 50 7.2	— 659.6	61.51	14 52.0	54 26.9	II. S.
7	15 27.78	1.770	12 38 48.24	116.34	— 8 6 1.2	— 616.2	61.75	14 48.4	54 13.9	II. S.
8	16 10.67	1.809	13 25 45.53	118.71	— 12 0 13.8	— 551.2	62.48	14 47.4	54 9.9	II. S.
9	16 54.83	1.874	14 13 58.77	122.60	— 15 24 10.2	— 464.7	63.57	14 49.0	54 15.8	II. S.
10	17 40.78	1.957	15 3 59.70	127.61	— 18 9 0.3	— 355.5	64.91	14 53.6	54 32.6	II. S.
11	18 28.84	2.048	15 56 7.89	133.09	— 20 5 27.3	— 222.7	66.33	15 1.1	55 0.5	II. S.
12	19 19.06	2.135	16 50 25.94	138.29	— 21 4 9.4	— 67.2	67.63	15 11.6	55 38.8	II. S.
13	20 11.15	2.202	17 46 36.47	142.34	— 20 56 46.3	+ 106.5	68.59	15 24.3	56 25.6	II. S.
14	21 4.53	2.241	18 44 4.71	144.72	— 19 37 43.1	289.2	69.10	15 38.6	57 18.1	II. N.
15	21 58.49	2.251	19 42 7.86	145.30	— 17 6 5.9	+ 466.7	69.18	15 53.3	58 12.2	II. N.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.		Diff. for 1 Hour of Long.	Right Ascension of Centre.		Diff. for 1 Hour of Long.	Geocentric Declination of Centre.		Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.	
	h	m	m	h	m	s	°	'	"	"	'	"		
Feb. 15	21	58.49	2.251	19 42	7.86	145.30	-17	6	5.9	+466.7	69.18	15 53.3	58 12.2	II. N.
16	22	52.42	2.240	20 40	8.88	144.65	-13	27	6.4	623.3	68.97	16 7.2	59 3.0	II. N.
17	23	45.98	2.223	21 37	47.82	143.62	-8	52	23.3	743.0	68.67	16 18.7	59 45.3	
19	0	39.20	2.214	22 35	6.19	143.06	-3	39	18.2	813.1	68.53	16 26.6	60 14.6	
20	1	32.40	2.223	23 32	23.62	143.60	+	1	50 42.0	826.7	68.70	16 30.4	60 28.2	I. S.
21	2	26.07	2.253	0 30	9.29	145.41	+	7	14 9.3	+780.7	69.19	16 29.6	60 25.6	I. S.
22	3	20.67	2.298	1 28	50.52	148.14	12	7	45.5	678.5	69.93	16 25.0	60 8.4	I. S.
23	4	16.41	2.346	2 28	40.75	150.97	16	10	32.6	528.4	70.68	16 17.2	59 40.0	I. S.
24	5	13.12	2.376	3 29	29.33	152.79	19	5	51.2	343.7	71.16	16 7.6	59 4.6	I. S.
25	6	10.17	2.371	4 30	38.20	152.52	20	43	9.4	+141.4	71.11	15 57.1	58 26.0	I. S.
26	7	6.59	2.324	5 31	9.58	149.65	+	20	59 11.6	-59.6	70.38	15 46.4	57 46.8	I. S.
27	8	1.40	2.238	6 39	3.28	144.51	19	57	53.6	-242.8	69.07	15 36.2	57 9.3	I. N.
28	8	53.84	2.130	7 26	35.09	138.02	17	48	52.4	-396.8	67.38	15 26.7	56 34.5	I. N.
Mar. 1	9	43.62	2.019	8 20	26.47	131.31	14	45	6.3	-516.1	65.59	15 18.0	56 2.5	I. N.
2	10	30.84	1.919	9 11	43.86	125.32	11	0	43.8	-600.0	63.96	15 10.2	55 33.6	I. N.
3	11	15.90	1.841	10 0	51.86	120.61	+	6	49 33.9	-650.4	62.67	15 3.1	55 7.8	I. S.
4	11	59.40	1.789	10 48	25.44	117.46	+	2	24 24.7	-670.4	61.81	14 56.8	54 45.4	I. S.
5	12	41.99	1.764	11 35	4.05	116.02	-	2	3 7.9	-662.9	61.42	14 51.9	54 26.7	II. S.
6	13	24.32	1.768	12 21	27.66	116.21	-	6	22 32.0	-630.1	61.50	14 48.1	54 12.8	II. S.
7	14	7.04	1.796	13 8	14.17	117.90	-	10	24 4.7	-573.9	62.01	14 45.9	54 4.6	II. S.
8	14	50.69	1.845	13 55	57.30	120.89	-	13	58 34.1	-495.0	62.88	14 45.6	54 3.4	II. S.
9	15	35.74	1.911	14 45	4.21	124.83	-	16	57 6.4	-394.1	64.00	14 47.5	54 10.5	II. S.
10	16	22.48	1.984	15 35	52.37	129.24	-	19	10 59.9	-271.8	65.22	14 52.0	54 26.9	II. S.
11	17	10.98	2.056	16 28	26.93	133.58	-	20	31 56.9	-129.7	66.39	14 59.2	54 53.4	II. S.
12	18	1.10	2.118	17 22	38.96	137.26	-	20	52 37.9	+28.8	67.35	15 9.3	55 30.2	II. S.
13	18	52.49	2.161	18 18	7.28	139.89	-	20	7 33.3	+197.7	68.00	15 21.9	56 16.6	II. N.
14	19	44.69	2.186	19 14	24.44	141.35	-	18	14 10.7	368.5	68.32	15 36.6	57 10.7	II. N.
15	20	37.29	2.196	20 11	5.57	141.97	-	15	13 57.0	529.9	68.41	15 52.6	58 9.5	II. N.
16	21	30.06	2.202	21 7	56.96	142.33	-	11	13 9.1	669.2	68.43	16 8.6	59 8.2	II. N.
17	22	23.03	2.215	22 5	0.64	143.10	-	6	23 24.2	772.4	68.56	16 23.0	60 1.1	II. N.
18	23	16.49	2.244	23 2	33.88	144.87	-	1	1 47.2	+826.4	68.96	16 34.2	60 42.2	
20	0	10.89	2.293	0 1	3.30	147.79	+	4	29 43.3	820.4	69.66	16 40.6	61 6.0	
21	1	6.66	2.356	1 0	54.85	151.60	9	45	49.5	749.1	70.61	16 41.6	61 9.6	I. S.
22	2	3.98	2.419	2 2	20.43	155.43	14	20	40.2	615.5	71.58	16 37.1	60 53.1	I. S.
23	3	2.62	2.461	3 5	4.96	157.94	17	51	33.6	432.3	72.24	16 28.0	60 19.8	I. S.
24	4	1.78	2.460	4 8	20.53	157.83	+	20	2 45.8	+221.1	72.28	16 15.8	59 34.6	I. S.
25	5	0.25	2.404	5 10	55.13	154.51	20	48	3.5	+6.9	71.54	16 1.8	58 43.3	I. S.
26	5	56.82	2.303	6 11	34.85	148.43	20	10	48.8	-188.5	70.08	15 47.6	57 51.1	I. N.
27	6	50.60	2.176	7 9	27.15	140.81	18	21	32.4	-351.7	68.18	15 34.1	57 1.5	I. N.
28	7	41.27	2.047	8 4	12.24	133.05	15	34	21.4	-477.9	66.17	15 22.0	56 17.1	I. N.
29	8	29.00	1.934	8 56	0.30	126.20	+	12	4 0.1	-568.1	64.33	15 11.6	55 39.1	I. N.
30	9	14.28	1.845	9 45	21.59	120.87	8	4	11.8	-625.8	62.85	15 3.1	55 7.6	I. N.
31	9	57.81	1.787	10 32	56.61	117.35	+	3	47 11.7	-654.6	61.83	14 56.2	54 42.5	I. N.
Apr. 1	10	40.29	1.758	11 19	28.96	115.64	-	0	36 1.5	-657.2	61.31	14 51.0	54 23.3	I. N.
2	11	22.43	1.758	12 5	41.23	115.65	-	4	55 19.7	-635.1	61.28	14 47.3	54 9.6	I. N. S.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.		Diff. for 1 Hour of Long.	Right Ascension of Centre.		Diff. for 1 Hour of Long.	Geocentric Declination of Centre.		Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.		
	h	m	m	h	m	s	°	"	"	s	"	"			
Apr.	2	11 22.43	1.758	12 54	1.23	115.65	-	4 55	19.7	-635.1	61.28	14 47.3	54 9.6	I. N. S.	
	3	12 4.89	1.784	12 52	12.35	117.19	-	9 1	0.4	-589.2	61.68	14 45.1	54 1.2	I. II. S.	
	4	12 48.22	1.830	13 39	35.68	119.95	-	12 43	32.7	-519.5	62.45	14 44.2	53 58.4	II. S.	
	5	13 32.83	1.890	14 28	16.42	123.57	-	15 53	32.0	-426.5	63.44	14 45.0	54 1.1	II. S.	
	6	14 18.98	1.956	15 18	29.16	127.53	-	18 21	50.8	-311.4	64.55	14 47.5	54 10.4	II. S.	
	7	15 6.68	2.018	16 10	15.52	131.25	-	20 0	4.0	-176.7	65.59	14 52.0	54 27.0	II. S.	
	8	15 55.74	2.068	17 3	23.68	134.25	-	20 41	9.9	-26.6	66.43	14 58.7	54 51.6	II. S.	
	9	16 45.79	2.100	17 57	31.57	136.20	-	20 20	11.6	+132.5	66.98	15 7.7	55 24.8	II. N. S.	
	10	17 36.40	2.115	18 52	13.24	137.12	-	18 54	58.4	293.2	67.24	15 19.1	56 6.7	II. N.	
	11	18 27.23	2.119	19 47	7.53	137.35	-	16 26	28.9	447.4	67.30	15 32.7	56 56.5	II. N.	
	12	19 18.11	2.122	20 42	5.63	137.55	-	12 59	2.2	+586.5	67.33	15 47.9	57 52.3	II. N.	
	13	20 9.19	2.137	21 37	15.01	138.41	-	8 40	30.2	701.3	67.50	16 3.8	58 50.8	II. N.	
	14	21 0.84	2.172	22 32	59.05	140.52	-	3 42	41.5	781.0	67.97	16 19.1	59 47.1	II. N.	
	15	21 53.64	2.233	23 29	52.72	144.24	+	1 38	3.9	813.8	68.83	16 32.3	60 35.3	II. N.	
	16	22 48.24	2.320	0 28	34.19	149.43		7 0	34.4	787.9	70.06	16 41.5	61 9.1	II. N.	
		17	23 45.11	2.419	1 29	32.08	155.41	+	11 59	33.6	+695.6	71.49	16 45.5	61 23.6	
19		0 44.28	2.507	2 32	48.70	160.70		16 8	19.6	538.3	72.75	16 43.5	61 16.2		
20		1 45.11	2.552	3 37	44.93	163.10		19 3	29.1	331.3	73.43	16 35.8	60 48.3	I. S.	
21		2 46.23	2.529	4 42	59.00	162.03		20 30	27.2	+102.6	73.17	16 23.7	60 3.7	I. S.	
22		3 45.96	2.437	5 46	48.86	156.49		20 26	49.6	-116.7	71.92	16 8.7	59 8.6	I. N.	
23		4 42.84	2.298	6 47	47.90	148.11	+	19 1	27.1	-303.3	69.94	15 52.7	58 9.6	I. N.	
24		5 36.14	2.143	7 45	10.76	138.80		16 29	55.8	-446.9	67.66	15 37.0	57 12.2	I. N.	
25		6 25.81	2.000	8 38	56.04	130.19		13 9	37.4	-548.0	65.46	15 22.8	56 20.1	I. N.	
26		7 12.37	1.885	9 29	33.70	123.27		9 16	27.5	-612.2	63.62	15 10.6	55 35.3	I. N.	
27		7 56.58	1.805	10 17	49.79	118.43		5 3	52.2	-646.0	62.28	15 0.8	54 59.4	I. N.	
28		8 39.28	1.760	11 4	35.66	115.75	+	0 43	1.7	-654.1	61.48	14 53.5	54 32.3	I. N.	
29		9 21.32	1.749	11 50	41.73	115.08	-	3 36	21.3	-639.0	61.24	14 48.3	54 13.5	I. N.	
30		10 3.47	1.768	12 36	54.16	116.24	-	7 45	13.1	-601.5	61.49	14 45.3	54 2.5	I. N.	
May		1	10 46.39	1.812	13 23	52.67	118.86	-	11 34	32.2	-541.2	62.16	14 44.2	53 58.3	I. N.
		2	11 30.58	1.873	14 12	7.97	122.54	-	14 55	0.7	-457.2	63.11	14 44.7	54 0.1	I. N. S.
		3	12 16.36	1.942	15 1	58.59	126.70	-	17 37	10.1	-349.7	64.19	14 46.8	54 7.6	II. S.
	4	13 3.77	2.008	15 53	27.78	130.64	-	19 31	52.1	-220.4	65.26	14 50.2	54 20.5	II. S.	
	5	13 52.60	2.058	16 46	22.22	133.69	-	20 31	14.0	-74.0	66.09	14 55.2	54 38.7	II. S.	
	6	14 42.39	2.087	17 40	14.53	135.42	-	20 29	44.5	+82.5	66.59	15 1.7	55 2.7	II. N.	
	7	15 32.59	2.092	18 34	31.13	135.76	-	19 25	3.5	240.4	66.74	15 9.9	55 32.8	II. N.	
	8	16 22.70	2.082	19 28	42.66	135.10		17 18	25.1	+390.9	66.64	15 19.8	56 9.0	II. N.	
	9	17 12.47	2.066	20 22	33.60	134.16	-	14 14	21.6	526.3	66.43	15 31.3	56 51.3	II. N.	
	10	18 1.96	2.060	21 16	7.45	133.80	-	10 20	14.0	640.1	66.36	15 44.2	57 38.6	II. N.	
	11	18 51.54	2.076	22 9	46.82	134.74	-	5 45	56.7	726.1	66.59	15 57.9	58 29.1	II. N.	
	12	19 41.84	2.122	23 4	10.01	137.53	-	0 44	7.0	776.4	67.26	16 11.8	59 19.7	II. N.	
	13	20 33.67	2.202	0 0	4.56	142.36	+	4 29	12.9	+781.8	68.42	16 24.2	60 5.8	II. N.	
	14	21 27.29	2.312	0 58	17.53	148.96		9 33	58.6	731.9	69.99	16 34.0	60 42.0	II. N.	
	15	22 24.75	2.433	1 59	20.89	156.31		14 6	17.6	618.9	71.71	16 39.8	61 3.1	II. N.	
	16	23 24.50	2.538	3 3	12.03	162.57		17 40	49.1	444.3	73.17	16 40.5	61 5.3		
18	0 26.14	2.587	4 8	57.33	165.47	+	19 55	38.5	+224.5	73.85	16 35.6	60 47.5			

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semi- Passing Meridian.	Geocentric Semi- diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ' "	"	s	"	"	
May 18	0 26.14	2.587	4 8 57.33	165.47	+ 19 55 38.5	+ 224.5	73.85	16 35.6	60 47.5	
19	1 27.99	2.553	5 14 55.13	163.48	20 38 23.8	- 10.2	73.41	16 25.8	60 11.4	I. N.
20	2 28.09	2.444	6 19 7.38	156.88	19 49 58.9	- 226.3	71.91	16 12.3	59 21.8	I. N.
21	3 24.92	2.288	7 20 3.10	147.50	17 42 57.3	- 400.7	69.71	15 56.7	58 24.9	I. N.
22	4 17.83	2.123	8 17 3.03	137.58	14 36 1.2	- 525.8	67.29	15 40.8	57 26.2	I. N.
23	5 6.98	1.977	9 10 16.35	128.82	+ 10 48 24.1	- 605.4	65.08	15 25.8	56 31.1	I. N.
24	5 53.02	1.866	10 0 22.91	122.11	6 36 41.9	- 647.7	63.33	15 12.6	55 42.8	I. N.
25	6 36.84	1.793	10 48 16.21	117.74	+ 2 14 10.8	- 660.6	62.14	15 1.9	55 3.4	I. N.
26	7 19.39	1.759	11 34 52.70	115.68	- 2 8 34.0	- 649.4	61.55	14 53.9	54 34.0	I. N.
27	8 1.56	1.760	12 21 6.22	115.78	- 6 22 34.1	- 617.0	61.53	14 48.7	54 14.7	I. N.
28	8 44.15	1.793	13 7 45.00	117.75	- 10 19 26.2	- 563.7	62.00	14 46.0	54 4.9	I. N.
29	9 27.82	1.850	13 53 29.16	121.16	- 13 50 37.4	- 488.4	62.86	14 45.7	54 3.8	I. N.
30	10 13.06	1.922	14 44 47.46	125.48	- 16 47 4.4	- 390.0	63.94	14 47.4	54 10.1	I. N.
31	11 0.08	1.996	15 35 53.10	129.96	- 18 59 25.9	- 268.1	65.08	14 50.8	54 22.9	I. N.
June 1	11 48.79	2.060	16 28 40.31	133.79	- 20 18 50.7	- 125.9	66.05	14 55.8	54 40.9	I. N.
2	12 38.77	2.101	17 22 44.05	136.24	- 20 38 15.8	+ 30.5	66.68	15 1.8	55 3.1	II. N.
3	13 29.39	2.112	18 17 25.93	136.94	- 19 53 50.4	191.5	66.89	15 8.9	55 29.0	II. N.
4	14 19.97	2.099	19 12 5.48	136.12	- 18 5 50.9	346.6	66.73	15 16.8	55 58.0	II. N.
5	15 10.01	2.070	20 6 12.95	134.42	- 15 18 43.1	485.8	66.36	15 25.5	56 30.0	II. N.
6	15 59.36	2.043	20 59 38.23	132.77	- 11 40 18.9	601.9	66.00	15 35.0	57 4.8	II. N.
7	16 48.20	2.031	21 52 33.42	132.06	- 7 20 59.0	+ 689.6	65.86	15 45.0	57 41.8	II. N.
8	17 37.07	2.046	22 45 30.08	132.99	- 2 32 56.2	744.7	66.12	15 55.6	58 20.2	II. N.
9	18 26.72	2.097	23 39 13.61	136.01	+ 2 29 44.9	761.9	66.89	16 5.9	58 58.3	II. N.
10	19 18.00	2.183	0 34 35.81	141.18	7 30 39.8	734.7	68.17	16 15.5	59 33.7	II. N.
11	20 11.72	2.297	1 32 24.43	148.07	12 10 33.2	655.7	69.83	16 23.4	60 2.7	II. N.
12	21 8.35	2.421	2 33 7.86	155.49	+ 16 7 37.8	+ 520.3	71.57	16 28.5	60 21.4	II. N.
13	22 7.72	2.520	3 36 36.23	161.45	18 59 45.6	332.5	72.92	16 29.8	60 26.4	II. N.
14	23 8.80	2.558	4 41 48.08	163.76	20 28 59.1	+ 109.9	73.43	16 26.9	60 15.7	
15	0 9.87	2.516	5 46 58.57	161.25	20 26 56.9	- 118.2	72.84	16 19.8	59 49.4	
17	1 9.03	2.404	6 50 14.23	154.46	18 57 46.5	- 321.2	71.24	16 9.0	59 9.7	I. N.
18	2 4.92	2.251	7 50 13.58	145.28	+ 16 16 3.3	- 478.9	69.05	15 55.7	58 21.0	I. N.
19	2 57.05	2.095	8 46 26.28	135.88	12 41 25.8	- 585.9	66.76	15 41.4	57 28.3	I. N.
20	3 45.65	1.960	9 39 6.80	127.78	8 33 25.9	- 647.2	64.73	15 27.2	56 36.3	I. N.
21	4 31.41	1.860	10 28 56.81	121.77	+ 4 8 40.0	- 671.2	63.18	15 14.3	55 48.9	I. N.
22	5 15.23	1.798	11 16 49.75	118.05	- 0 19 43.6	- 666.4	62.22	15 3.6	55 9.5	I. N.
23	5 58.03	1.774	12 3 41.27	116.63	- 4 41 23.4	- 638.3	61.84	14 55.5	54 39.6	I. N.
24	6 40.69	1.786	12 50 24.17	117.29	- 8 47 39.1	- 589.6	62.01	14 50.2	54 20.3	I. N.
25	7 23.98	1.827	13 37 45.57	119.76	- 12 30 26.7	- 520.9	62.64	14 47.8	54 11.5	I. N.
26	8 8.55	1.891	14 26 23.83	123.61	- 15 41 33.5	- 431.0	63.61	14 48.2	54 13.0	I. N.
27	8 54.83	1.967	15 16 44.78	128.20	- 18 12 17.1	- 318.9	64.76	14 51.1	54 23.6	I. N.
28	9 42.96	2.042	16 8 56.97	132.73	- 19 53 42.3	- 184.7	65.87	14 56.0	54 41.9	I. N.
29	10 32.74	2.102	17 2 48.60	136.34	- 20 37 38.1	- 32.3	66.74	15 2.7	55 6.3	I. N.
30	11 23.66	2.135	17 57 48.47	138.34	- 20 18 7.6	+ 130.9	67.21	15 10.5	55 34.9	I. N.
July 1	12 15.00	2.138	18 53 14.08	138.50	- 18 53 0.6	293.7	67.24	15 18.9	56 5.9	II. N.
2	13 6.10	2.118	19 48 24.53	137.19	- 16 24 49.2	+ 444.3	66.93	15 27.6	56 37.8	II. N.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ' "	"	s	"	"	
July 2	13 6.10	2.118	19 48 24.53	137.19	- 16 24 49.2	+ 444.3	66.93	15 27.6	56 37.8	II. N.
3	13 56.50	2.083	20 42 53.42	135.20	- 13 0 39.4	572.0	66.46	15 36.1	57 9.1	II. N.
4	14 46.13	2.055	21 36 35.92	133.46	- 8 51 16.3	669.4	66.07	15 44.2	57 38.9	II. N.
5	15 35.27	2.045	22 29 49.27	132.89	- 4 9 52.2	731.4	65.98	15 51.9	58 7.0	II. N.
6	16 24.51	2.064	23 23 8.17	134.02	+ 0 48 44.0	754.9	66.32	15 58.9	58 32.8	II. N.
7	17 14.59	2.116	0 17 17.97	137.15	+ 5 48 28.8	+ 736.6	67.14	16 5.2	58 55.8	II. N.
8	18 6.31	2.199	1 13 6.12	142.15	10 31 58.3	673.0	68.41	16 10.6	59 15.2	II. N.
9	19 0.30	2.302	2 11 10.86	148.37	14 40 29.1	561.3	69.92	16 14.4	59 29.8	II. N.
10	19 56.80	2.401	3 11 46.71	154.47	17 54 46.0	402.5	71.36	16 16.6	59 37.6	II. N.
11	20 55.42	2.473	4 14 30.03	158.66	19 57 20.0	+ 205.3	72.30	16 16.3	59 36.9	II. N.
12	21 55.05	2.484	5 18 14.04	159.31	+ 20 36 14.2	- 11.9	72.40	16 13.4	59 26.0	II. N.
13	22 54.11	2.427	6 21 24.10	155.86	19 48 44.2	- 222.4	71.53	16 7.5	59 4.4	II. N.
14	23 51.10	2.316	7 22 29.45	149.17	17 42 23.8	- 402.6	69.90	15 59.0	58 33.2	
16	0 45.06	2.179	8 20 32.28	140.96	14 32 37.5	- 538.2	67.88	15 48.3	57 54.2	
17	1 35.72	2.046	9 15 17.10	132.91	10 38 15.5	- 625.9	65.88	15 36.6	57 10.7	I. N.
18	2 23.41	1.934	10 7 2.98	126.19	+ 6 17 39.0	- 670.5	64.18	15 24.5	56 26.4	I. N.
19	3 8.79	1.853	10 56 29.47	121.37	+ 1 46 36.6	- 679.4	62.96	15 13.2	55 44.8	I. N.
20	3 52.65	1.808	11 44 24.94	118.61	- 2 42 4.6	- 659.8	62.28	15 3.4	55 8.9	I. N.
21	4 35.83	1.796	12 31 39.33	117.92	- 6 58 7.8	- 616.9	62.14	14 55.9	54 41.2	I. N.
22	5 19.11	1.816	13 18 59.92	119.10	- 10 52 52.1	- 553.5	62.49	14 50.9	54 23.1	I. N.
23	6 3.19	1.861	14 7 8.43	121.85	- 14 18 19.7	- 470.5	63.23	14 49.0	54 15.8	I. N.
24	6 48.61	1.926	14 56 37.84	125.75	- 17 6 34.3	- 367.2	64.24	14 49.9	54 19.3	I. N.
25	7 35.72	2.000	15 47 48.59	130.18	- 19 9 28.1	- 243.7	65.36	14 53.8	54 33.5	I. N.
26	8 24.58	2.070	16 40 44.54	134.38	- 20 18 58.1	- 100.8	66.38	15 0.2	54 57.0	I. N.
27	9 14.94	2.123	17 35 10.89	137.59	- 20 28 3.5	+ 57.3	67.13	15 8.7	55 28.2	I. N.
28	10 6.29	2.151	18 30 36.93	139.30	- 19 32 12.0	+ 222.3	67.50	15 18.6	56 4.6	I. N.
29	10 57.99	2.153	19 26 24.38	139.42	- 17 30 45.5	383.2	67.48	15 29.2	56 43.8	I. N.
30	11 49.49	2.136	20 21 59.46	138.37	- 14 27 53.3	527.5	67.18	15 39.8	57 22.4	I. N.
31	12 40.48	2.112	21 17 3.33	136.95	- 10 32 32.9	643.8	66.83	15 49.5	57 58.0	II. N.
Aug. 1	13 30.96	2.097	22 11 37.08	136.00	- 5 57 41.8	723.7	66.62	15 57.7	58 28.3	II. N.
2	14 21.27	2.100	23 6 0.43	136.18	- 0 59 10.5	+ 761.4	66.71	16 4.1	58 51.8	II. N.
3	15 11.95	2.129	0 0 46.44	137.92	+ 4 5 22.4	753.5	67.21	16 8.5	59 8.0	II. N.
4	16 3.65	2.184	0 56 33.59	141.25	8 57 22.1	698.6	68.10	16 11.1	59 17.0	II. N.
5	16 56.94	2.259	1 53 56.09	145.76	13 17 57.5	596.7	69.26	16 11.7	59 19.4	II. N.
6	17 52.12	2.338	2 53 12.21	150.53	16 48 55.6	451.2	70.44	16 10.9	59 16.3	II. N.
7	18 49.03	2.399	3 54 12.76	154.21	+ 19 14 12.0	+ 270.1	71.32	16 8.4	59 7.7	II. N.
8	19 46.97	2.420	4 56 15.18	155.48	20 22 9.9	+ 67.7	71.58	16 4.8	58 54.3	II. N.
9	20 44.79	2.389	5 58 10.57	153.58	20 8 9.3	- 136.2	71.06	15 59.7	58 35.8	II. N.
10	21 41.25	2.309	6 58 43.82	148.76	18 35 43.8	- 321.3	69.83	15 53.4	58 12.2	II. N. S.
11	22 35.38	2.199	7 56 57.28	142.16	15 55 46.0	- 472.0	68.15	15 45.6	57 43.8	II. N.
12	23 26.74	2.082	8 52 24.24	135.12	+ 12 23 46.2	- 580.8	66.34	15 36.8	57 11.4	
14	0 15.41	1.975	9 45 8.58	128.76	8 16 46.1	- 647.3	64.70	15 27.2	56 36.5	
15	1 1.80	1.894	10 35 36.01	123.79	+ 3 51 1.0	- 675.4	63.42	15 17.5	56 0.9	I. N.
16	1 46.53	1.839	11 24 24.11	120.52	- 0 39 11.4	- 670.6	62.59	15 8.4	55 27.1	I. N.
17	2 30.32	1.814	12 12 14.94	119.01	- 5 1 47.8	- 638.2	62.24	15 0.3	54 57.3	I. N.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semi- diameter Passing Meridian.	Geocentric Semi- diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ' "	"	s	' "	' "	
Aug. 17	2 30.32	1.814	12 12 14.94	119.01	— 5 1 47.8	— 638.2	62.24	15 0.3	54 57.3	I. N.
18	3 13.84	1.817	12 59 50.23	119.20	— 9 6 38.4	— 582.4	62.35	14 53.9	54 34.1	I. N.
19	3 57.75	1.845	13 47 48.23	120.87	— 12 44 56.0	— 505.8	62.86	14 49.8	54 18.9	I. N.
20	4 42.57	1.892	14 36 41.20	123.72	— 15 48 42.5	— 409.8	63.66	14 48.3	54 13.4	I. N.
21	5 28.69	1.952	15 26 52.62	127.32	— 18 10 21.7	— 295.3	64.64	14 49.8	54 18.8	I. N.
22	6 16.31	2.016	16 18 34.20	131.13	— 19 42 36.8	— 163.2	65.63	14 54.2	54 35.0	I. N.
23	7 5.39	2.073	17 11 43.90	134.56	— 20 18 48.0	— 15.6	66.48	15 1.5	55 1.9	I. N.
24	7 55.68	2.115	18 6 6.15	137.11	— 19 53 41.1	+ 142.4	67.08	15 11.5	55 38.2	I. N.
25	8 46.76	2.138	19 1 16.00	138.52	— 18 24 30.3	303.2	67.37	15 23.3	56 21.9	I. S.
26	9 38.20	2.145	19 56 46.95	138.92	— 15 52 4.4	456.8	67.40	15 36.3	57 9.7	I. S.
27	10 29.66	2.142	20 52 19.53	138.75	— 12 21 33.9	+ 591.8	67.30	15 49.6	57 58.2	I. S.
28	11 21.04	2.141	21 47 47.85	138.66	— 8 2 47.4	696.3	67.24	16 1.5	58 42.8	I. S.
29	12 12.52	2.151	22 43 21.45	139.29	— 3 9 57.2	760.4	67.39	16 11.8	59 19.6	II. N.
30	13 4.46	2.180	23 39 22.79	141.04	+ 1 59 1.8	776.0	67.84	16 18.7	59 45.3	II. N.
31	13 57.33	2.229	0 36 20.59	143.98	7 3 43.1	738.5	68.62	16 22.2	59 58.2	II. N.
Sept. 1	14 51.58	2.293	1 34 40.89	147.81	+ 11 42 37.2	+ 647.3	69.62	16 22.2	59 58.2	II. N.
2	15 47.40	2.358	2 34 35.88	151.70	15 35 5.9	507.6	70.62	16 19.1	59 46.9	II. N.
3	16 44.60	2.404	3 35 53.70	154.50	18 23 36.6	329.9	71.34	16 13.7	59 27.0	II. N.
4	17 42.50	2.414	4 37 53.91	155.08	19 56 2.5	+ 130.3	71.50	16 6.6	59 1.0	II. N.
5	18 40.08	2.377	5 39 34.53	152.84	20 7 34.8	— 71.4	70.96	15 58.6	58 31.5	II. N.
6	19 36.24	2.297	6 39 49.71	148.07	+ 19 1 11.4	— 256.6	69.76	15 50.1	58 0.4	II. S.
7	20 30.15	2.192	7 37 49.64	141.76	16 46 22.2	— 411.8	68.13	15 41.5	57 28.7	II. S.
8	21 21.43	2.082	8 33 11.57	135.09	13 36 41.0	— 530.2	66.39	15 33.0	56 57.3	II. S.
9	22 10.15	1.982	9 25 59.56	129.06	9 47 17.3	— 610.5	64.78	15 24.5	56 26.2	II. S.
10	22 56.71	1.902	10 16 36.97	124.30	5 33 10.3	— 654.4	63.49	15 16.2	55 56.0	II. S.
11	23 41.65	1.848	11 5 37.87	121.05	+ 1 8 13.0	— 665.2	62.61	15 8.5	55 27.2	
13	0 25.63	1.821	11 53 40.22	119.40	— 3 15 6.9	— 646.8	62.18	15 1.4	55 0.9	
14	1 9.25	1.818	12 41 21.34	119.26	— 7 25 44.7	— 602.2	62.17	14 55.0	54 38.1	I. N.
15	1 53.09	1.838	13 29 15.12	120.42	— 11 13 50.8	— 534.5	62.53	14 50.2	54 20.3	I. N.
16	2 37.60	1.874	14 17 49.48	122.59	— 14 30 34.7	— 445.8	63.17	14 47.2	54 9.2	I. N.
17	3 23.11	1.921	15 7 24.61	125.41	— 17 7 59.0	— 338.2	63.98	14 46.3	54 6.0	I. N.
18	4 9.82	1.971	15 58 10.95	128.45	— 18 58 56.1	— 213.9	64.84	14 48.0	54 12.4	I. N.
19	4 57.70	2.018	16 50 8.52	131.27	— 19 57 17.6	— 75.9	65.62	14 52.7	54 29.2	I. N.
20	5 46.61	2.055	17 43 7.51	133.52	— 19 58 16.4	+ 72.2	66.21	15 0.0	54 56.6	I. N.
21	6 36.27	2.081	18 36 51.94	135.05	— 18 58 55.8	224.8	66.59	15 10.4	55 34.4	I. S.
22	7 26.41	2.096	19 31 4.99	135.95	— 16 58 43.4	+ 375.2	66.78	15 23.2	56 21.4	I. S.
23	8 16.84	2.106	20 25 35.40	136.57	— 14 0 4.3	515.5	66.88	15 37.7	57 15.1	I. S.
24	9 7.53	2.120	21 20 22.26	137.42	— 10 8 53.2	636.2	67.02	15 53.2	58 11.9	I. S.
25	9 58.70	2.146	22 15 37.21	139.00	— 5 35 5.9	726.7	67.36	16 8.2	59 6.8	I. S.
26	10 50.71	2.191	23 11 42.95	141.69	— 0 33 5.9	775.4	67.99	16 21.1	59 54.3	I. S.
27	11 44.05	2.257	0 9 8.51	145.62	+ 4 38 14.2	+ 771.7	68.94	16 30.7	60 29.2	I. N.
28	12 39.15	2.337	1 8 20.42	150.46	9 36 19.6	708.3	70.13	16 35.6	60 47.4	II. N.
29	13 36.23	2.418	2 9 30.84	155.32	13 56 56.1	585.0	71.34	16 35.6	60 47.3	II. N.
30	14 35.02	2.476	3 12 24.69	158.83	17 17 32.3	410.8	72.23	16 30.8	60 30.0	II. N.
Oct. 1	15 34.72	2.489	4 16 12.83	159.63	+ 19 21 22.0	+ 205.0	72.49	16 22.3	59 58.9	II. N.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semi-d. Passing Meridian.	Geocentric Semi- diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ' "	"	s	' "	' "	
Oct. 1	15 34.72	2.489	4 16 12.83	159.63	+ 19 21 22.0	+ 205.0	72.49	16 22.3	59 58.9	II. N.
2	16 34.06	2.446	5 19 39.77	157.02	20 0 41.4	- 7.4	71.92	16 11.5	59 18.6	II. N.
3	17 31.73	2.353	6 21 26.01	151.40	19 17 40.3	- 203.3	70.60	15 59.2	58 33.8	II. S.
4	18 26.76	2.230	7 20 33.14	144.02	17 22 24.7	- 366.8	68.79	15 46.9	57 48.6	II. S.
5	19 18.74	2.102	8 16 36.75	136.34	14 29 19.9	- 491.8	66.83	15 35.2	57 5.6	II. S.
6	20 7.79	1.989	9 9 44.41	129.51	+ 10 53 56.0	- 578.9	65.02	15 24.5	56 26.3	II. S.
7	20 54.40	1.900	10 0 25.22	124.18	6 50 52.5	- 630.9	63.56	15 15.1	55 51.7	II. S.
8	21 39.23	1.841	10 49 18.94	120.60	+ 2 33 19.7	- 651.9	62.55	15 6.9	55 21.6	II. S.
9	22 22.98	1.810	11 37 8.11	118.78	- 1 46 55.9	- 644.9	62.00	14 59.9	54 56.0	II. S.
10	23 6.34	1.807	12 24 33.21	118.57	- 5 59 10.9	- 612.2	61.91	14 54.1	54 34.8	
11	23 49.89	1.825	13 12 9.66	119.68	- 9 53 26.9	- 555.2	62.19	14 49.5	54 17.9	
13	0 34.09	1.860	14 0 25.52	121.79	- 13 20 21.7	- 475.7	62.78	14 46.2	54 5.9	
14	1 19.25	1.904	14 49 39.44	124.44	- 16 11 12.7	- 375.3	63.52	14 44.5	53 59.4	I. N.
15	2 5.51	1.950	15 39 59.06	127.17	- 18 18 11.5	- 256.8	64.30	14 44.5	53 59.3	I. N.
16	2 52.80	1.989	16 31 20.58	129.53	- 19 34 48.8	- 124.2	64.99	14 46.5	54 6.9	I. N.
17	3 40.89	2.016	17 23 30.64	131.18	- 19 56 20.3	+ 17.5	65.48	14 50.9	54 23.0	I. N.
18	4 29.48	2.031	18 16 10.81	132.05	- 19 20 9.5	163.3	65.76	14 57.8	54 48.5	I. S.
19	5 18.29	2.035	19 9 3.89	132.31	- 17 45 58.1	306.8	65.87	15 7.5	55 23.9	I. S.
20	6 7.16	2.037	20 2 0.31	132.41	- 15 15 47.5	442.3	65.90	15 19.7	56 8.9	I. S.
21	6 56.12	2.045	20 55 2.66	132.90	- 11 53 58.1	564.0	66.00	15 34.3	57 2.2	I. S.
22	7 45.45	2.069	21 48 27.41	134.36	- 7 47 20.8	+ 664.9	66.33	15 50.3	58 1.0	I. S.
23	8 35.65	2.118	22 42 43.79	137.27	- 3 5 53.2	736.5	67.00	16 6.7	59 1.4	I. S.
24	9 27.33	2.194	23 38 29.96	141.86	+ 1 56 30.7	767.7	68.10	16 22.1	59 57.9	I. S.
25	10 21.18	2.297	0 36 26.03	148.03	7 1 14.2	746.2	69.56	16 34.6	60 43.9	I. S.
26	11 17.68	2.413	1 37 2.28	155.03	11 45 4.7	662.0	71.22	16 42.7	61 13.6	I. S.
27	12 16.92	2.519	2 40 22.65	161.40	+ 15 42 16.1	+ 513.6	72.73	16 45.2	61 22.6	II. N.
28	13 18.24	2.581	3 45 48.40	165.14	18 28 57.2	312.9	73.64	16 41.7	61 9.8	II. N.
29	14 20.24	2.572	4 51 55.16	164.62	19 49 7.1	+ 86.3	73.58	16 32.9	60 37.7	II. N.
30	15 21.11	2.489	5 56 54.22	159.61	19 38 55.3	- 133.6	72.47	16 20.3	59 51.3	II. S.
31	16 19.29	2.353	6 59 10.79	151.41	18 6 36.2	- 321.0	70.57	16 5.4	58 56.9	II. S.
Nov. 1	17 13.90	2.198	7 57 52.85	142.07	+ 15 28 6.2	- 463.7	68.32	15 50.1	58 0.4	II. S.
2	18 4.86	2.053	8 52 55.50	133.36	12 1 40.7	- 561.3	66.12	15 35.4	57 6.3	II. S.
3	18 52.65	1.936	9 44 47.61	126.31	8 4 16.5	- 619.7	64.27	15 22.2	56 17.7	II. S.
4	19 38.05	1.853	10 34 15.28	121.36	+ 3 50 12.5	- 645.7	62.91	15 10.9	55 36.4	II. S.
5	20 21.89	1.806	11 22 9.79	118.54	- 0 28 39.1	- 644.4	62.10	15 1.7	55 2.8	II. S.
6	21 5.01	1.792	12 9 20.68	117.68	- 4 42 7.3	- 619.1	61.80	14 54.6	54 36.5	II. S.
7	21 48.14	1.806	12 56 31.75	118.49	- 8 40 54.9	- 571.1	61.96	14 49.4	54 17.4	II. S.
8	22 31.86	1.840	13 44 18.56	120.58	- 12 16 5.9	- 501.0	62.46	14 45.9	54 4.6	II. S.
9	23 16.58	1.888	14 33 5.88	123.45	- 15 18 53.8	- 409.4	63.20	14 44.0	53 57.6	
11	0 2.51	1.939	15 23 5.49	126.50	- 17 40 55.8	- 297.6	64.00	14 43.6	53 56.0	
12	0 49.58	1.982	16 14 14.44	129.12	- 19 14 46.9	- 169.1	64.70	14 44.6	53 59.8	
13	1 37.54	2.011	17 6 16.28	130.84	- 19 54 46.8	- 29.4	65.20	14 47.3	54 9.6	I. N. S.
14	2 25.96	2.021	17 58 45.78	131.43	- 19 37 43.0	+ 114.9	65.42	14 51.7	54 25.8	I. S.
15	3 14.40	2.014	18 51 16.72	131.01	- 18 23 14.7	256.5	65.38	14 57.9	54 48.9	I. S.
16	4 2.55	1.999	19 43 30.45	130.10	- 16 13 45.2	+ 389.0	65.21	15 6.4	55 19.9	I. S.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.		Diff. for 1 Hour of Long.	Right Ascension of Centre.		Diff. for 1 Hour of Long.	Geocentric Declination of Centre.		Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.			
	h	m	m	h	m	s	°	'	"	s	"	"	I.	S.		
Nov. 16	4	2.55	1.999	19	43	30.45	130.10	-16	13	45.2	+389.0	65.21	15 6.4	55 19.9	I.	S.
17	4	50.35	1.986	20	35	22.57	129.33	-13	13	56.0	507.4	65.06	15 17.0	55 58.9	I.	S.
18	5	37.98	1.987	21	27	5.15	129.43	-9	30	19.1	607.3	65.10	15 29.7	56 45.5	I.	S.
19	6	25.92	2.013	22	19	6.50	130.98	-5	11	11.3	684.0	65.50	15 44.2	57 38.6	I.	S.
20	7	14.88	2.072	23	12	7.96	134.49	-0	27	0.7	731.2	66.37	15 59.7	58 35.7	I.	S.
21	8	5.65	2.165	0	6	59.13	140.14	+4	28	39.4	+739.7	67.75	16 15.1	59 32.3	I.	S.
22	8	50.97	2.291	1	4	29.78	147.68	9	18	6.3	698.1	69.55	16 29.0	60 23.2	I.	S.
23	9	55.75	2.433	2	5	16.17	156.21	13	39	7.5	596.2	71.55	16 39.5	61 2.1	I.	S.
24	10	55.72	2.589	3	9	21.11	163.85	17	6	37.5	431.2	73.31	16 45.3	61 23.0	I.	S.
25	11	58.17	2.631	4	15	54.48	168.16	19	17	18.0	+215.8	74.31	16 45.1	61 22.3	II.	S.
26	13	1.34	2.617	5	23	11.69	167.32	+19	56	25.2	-20.5	74.14	16 38.9	60 59.7	II.	S.
27	14	3.10	2.517	6	29	4.18	161.32	19	2	58.6	-241.3	72.78	16 27.7	60 18.5	II.	S.
28	15	1.72	2.362	7	31	47.38	151.97	16	49	10.8	-419.1	70.62	16 13.0	59 24.4	II.	S.
29	15	56.36	2.193	8	30	31.71	141.77	13	34	48.3	-543.9	68.19	15 56.6	58 24.2	II.	S.
30	16	47.11	2.041	9	25	21.28	132.64	9	40	43.5	-618.8	65.93	15 40.1	57 23.9	II.	S.
Dec. 1	17	34.59	1.923	10	16	54.80	125.55	+5	25	5.2	-653.3	64.10	15 25.0	56 28.1	II.	S.
2	18	19.72	1.844	11	6	6.19	120.82	+1	2	15.2	-656.2	62.85	15 12.0	55 40.2	II.	S.
3	19	3.42	1.804	11	53	52.14	118.39	-3	16	33.3	-634.1	62.17	15 1.4	55 1.3	II.	S.
4	19	46.59	1.798	12	41	5.65	118.05	-7	22	7.5	-590.3	62.01	14 53.4	54 32.1	II.	S.
5	20	29.97	1.821	13	28	32.46	119.43	-11	6	12.8	-526.7	62.33	14 48.0	54 12.5	II.	S.
6	21	14.17	1.865	14	16	48.45	122.06	-14	20	47.7	-443.2	62.97	14 45.1	54 1.5	II.	S.
7	21	59.58	1.920	15	6	16.73	125.35	-16	57	51.0	-339.2	63.77	14 44.2	53 58.3	II.	S.
8	22	46.31	1.973	15	57	4.63	128.58	-18	49	37.0	-216.8	64.57	14 45.1	54 1.6	II.	S.
9	23	34.20	2.015	16	49	2.63	131.09	-19	49	21.1	-79.8	65.19	14 47.6	54 10.7		
11	0	22.85	2.036	17	41	46.27	132.33	-19	52	22.8	+65.4	65.51	14 51.4	54 24.7		
12	1	11.72	2.033	18	34	43.24	132.20	-18	57	0.1	+210.7	65.51	14 56.5	54 43.3	I.	S.
13	2	0.31	2.013	19	27	23.24	130.99	-17	4	55.1	347.6	65.25	15 2.7	55 6.5	I.	S.
14	2	48.31	1.986	20	19	27.50	129.36	-14	20	56.1	469.2	64.89	15 10.4	55 34.2	I.	S.
15	3	35.69	1.964	21	10	54.69	128.04	-10	52	15.8	570.4	64.62	15 19.2	56 6.8	I.	S.
16	4	22.74	1.961	22	2	2.03	127.81	-6	47	46.8	647.7	64.62	15 29.4	56 44.4	I.	S.
17	5	10.02	1.985	22	53	23.08	129.26	-2	17	41.4	+697.9	65.03	15 40.8	57 26.5	I.	S.
18	5	58.29	2.044	23	45	43.68	132.81	+2	26	18.2	716.3	65.96	15 53.3	58 12.0	I.	S.
19	6	48.42	2.140	0	39	56.32	138.60	7	10	13.8	696.2	67.41	16 6.0	58 58.8	I.	S.
20	7	41.26	2.268	1	36	51.82	146.29	11	37	3.8	629.4	69.28	16 18.1	59 43.4	I.	S.
21	8	37.39	2.410	2	37	5.49	154.86	15	26	27.4	508.1	71.30	16 28.3	60 20.9	I.	S.
22	9	36.82	2.536	3	40	37.48	162.43	+18	16	9.9	+331.8	73.03	16 35.3	60 46.3	I.	S.
23	10	38.67	2.606	4	46	35.15	166.61	19	46	16.2	+113.6	73.95	16 37.7	60 55.3	I.	S.
24	11	41.21	2.591	5	53	14.23	165.73	19	45	15.6	-118.0	73.72	16 34.9	60 45.0	I.	S.
25	12	42.37	2.494	6	58	30.54	159.91	18	14	37.5	-329.1	72.37	16 27.1	60 16.3	II.	S.
26	13	40.52	2.346	8	0	45.51	151.02	15	28	15.2	-493.8	70.28	16 15.1	59 32.3	II.	S.
27	14	34.90	2.186	8	59	13.92	141.39	+11	47	3.1	-603.0	67.98	16 0.5	58 38.4	II.	S.
28	15	25.60	2.044	9	54	1.19	132.81	7	32	45.3	-660.6	65.88	15 44.7	57 40.6	II.	S.
29	16	13.26	1.934	10	45	45.12	126.22	+3	4	7.6	-676.4	64.22	15 29.3	56 44.1	II.	S.
30	16	58.74	1.862	11	35	17.77	121.89	-1	24	8.7	-660.4	63.12	15 15.5	55 53.2	II.	S.
31	17	42.94	1.827	12	23	33.80	119.81	-5	40	50.9	-619.6	62.58	15 3.9	55 10.9	II.	S.

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Jan. 0	23 11.9	17 54 22.92	-24 4 56.6	6.4	2.4	0.18	Feb. 15	1 19.0	22 59 15.58	-6 14 30.2	8.4	3.1	0.21
1	23 14.7	18 1 6.06	24 11 44.7	6.4	2.4	0.18	16	1 19.8	23 4 0.69	5 29 54.8	8.6	3.2	0.21
2	23 17.5	18 7 51.51	24 17 17.6	6.4	2.4	0.18	17	1 20.2	23 8 24.27	4 46 49.3	8.9	3.3	0.22
3	23 20.4	18 14 39.12	24 21 33.6	6.4	2.4	0.18	18	1 20.3	23 12 24.11	4 5 36.8	9.1	3.4	0.22
4	23 23.2	18 21 28.75	24 24 31.6	6.3	2.4	0.17	19	1 19.9	23 15 57.98	3 26 40.8	9.4	3.5	0.23
5	23 26.1	18 28 20.29	-24 26 9.9	6.3	2.4	0.17	20	1 19.0	23 19 3.88	-2 50 25.5	9.7	3.6	0.24
6	23 29.0	18 35 13.64	24 26 27.7	6.3	2.4	0.17	21	1 17.7	23 21 39.88	2 17 14.6	10.0	3.7	0.24
7	23 31.9	18 42 8.67	24 25 23.6	6.3	2.4	0.17	22	1 15.9	23 23 44.29	1 47 30.8	10.3	3.8	0.25
8	23 34.9	18 49 5.33	24 22 56.6	6.3	2.4	0.17	23	1 13.5	23 25 15.72	1 21 35.7	10.6	4.0	0.26
9	23 38.0	18 56 3.44	24 19 5.5	6.2	2.4	0.17	24	1 10.5	23 26 13.27	0 59 48.4	10.9	4.1	0.27
10	23 41.0	19 3 2.94	-24 13 49.4	6.2	2.3	0.17	25	1 7.0	23 26 36.44	-0 42 25.7	11.3	4.3	0.28
11	23 44.1	19 10 3.66	24 7 7.1	6.2	2.3	0.17	26	1 2.8	23 26 25.30	0 29 40.8	11.6	4.4	0.29
12	23 47.2	19 17 5.54	23 58 57.9	6.2	2.3	0.17	27	0 58.1	23 25 40.49	0 21 43.3	11.9	4.6	0.30
13	23 50.3	19 24 8.46	23 49 20.9	6.2	2.3	0.17	28	0 52.9	23 24 23.40	0 18 37.9	12.3	4.7	0.31
14	23 53.4	19 31 12.33	23 38 15.1	6.2	2.3	0.17	Mar. 1	0 47.2	23 22 36.07	0 20 24.2	12.6	4.8	0.32
15	23 56.5	19 38 17.00	-23 25 39.7	6.2	2.3	0.17	2	0 41.0	23 20 21.20	-0 26 56.1	13.0	4.9	0.33
16	23 59.6	19 45 22.38	23 11 34.1	6.2	2.3	0.17	3	0 34.5	23 17 42.19	0 38 1.0	13.3	5.0	0.33
18	0 2.8	19 52 28.34	22 55 57.5	6.2	2.3	0.17	4	0 27.6	23 14 43.02	0 53 20.3	13.5	5.1	0.34
19	0 6.0	19 59 34.78	22 38 49.4	6.2	2.3	0.17	5	0 20.4	23 11 28.11	1 12 30.1	13.8	5.2	0.35
20	0 9.1	20 6 41.56	22 20 9.2	6.2	2.4	0.17	6	0 13.1	23 8 2.25	1 35 0.7	14.0	5.2	0.35
21	0 12.3	20 13 48.59	-21 59 56.5	6.2	2.4	0.17	7	0 5.7	23 4 30.39	-2 0 18.2	14.2	5.3	0.36
22	0 15.5	20 20 55.70	21 38 10.8	6.2	2.4	0.17	7	23 58.2	23 0 57.44	2 27 46.3	14.2	5.3	0.36
23	0 18.7	20 28 2.77	21 14 51.9	6.3	2.4	0.17	8	23 50.8	22 57 28.17	2 56 47.3	14.3	5.3	0.36
24	0 21.9	20 35 9.68	20 49 59.4	6.3	2.4	0.17	9	23 43.5	22 54 6.91	3 26 43.4	14.3	5.3	0.36
25	0 25.0	20 42 16.26	20 23 33.8	6.3	2.4	0.17	10	23 36.4	22 50 57.62	3 56 58.6	14.3	5.4	0.36
26	0 28.2	20 49 22.32	-19 55 34.7	6.4	2.4	0.17	11	23 29.5	22 48 3.67	-4 26 59.6	14.3	5.4	0.36
27	0 31.3	20 56 27.72	19 26 2.7	6.4	2.4	0.17	12	23 23.0	22 45 27.72	4 56 16.4	14.3	5.4	0.36
28	0 34.4	21 3 32.22	18 54 58.0	6.5	2.4	0.17	13	23 16.9	22 43 12.07	5 24 23.2	14.2	5.4	0.36
29	0 37.5	21 10 35.61	18 22 21.9	6.5	2.4	0.17	14	23 11.1	22 41 18.16	5 50 58.5	14.0	5.3	0.36
30	0 40.6	21 17 37.61	17 48 15.0	6.5	2.5	0.17	15	23 5.6	22 39 47.03	6 15 45.0	13.8	5.2	0.35
31	0 43.6	21 24 37.93	-17 12 39.1	6.6	2.5	0.17	16	23 0.5	22 38 39.18	-6 38 29.8	13.6	5.1	0.35
Feb. 1	0 46.7	21 31 36.28	16 35 35.9	6.6	2.5	0.17	17	22 55.7	22 37 54.73	6 59 2.6	13.3	5.0	0.35
2	0 49.7	21 38 32.20	15 57 8.2	6.7	2.5	0.17	18	22 51.4	22 37 33.41	7 17 17.2	13.1	5.0	0.34
3	0 52.7	21 45 25.26	15 17 18.8	6.7	2.6	0.18	19	22 47.7	22 37 34.74	7 33 9.4	12.9	4.9	0.34
4	0 55.6	21 52 14.88	14 36 11.7	6.8	2.6	0.18	20	22 44.3	22 37 58.00	7 46 37.1	12.7	4.8	0.33
5	0 58.4	21 59 0.50	-13 53 50.9	6.9	2.6	0.18	21	22 41.1	22 38 42.33	-7 57 40.2	12.5	4.7	0.33
6	1 1.0	22 5 41.39	13 10 22.6	7.0	2.6	0.18	22	22 38.1	22 39 46.80	8 6 19.6	12.3	4.7	0.32
7	1 3.6	22 12 16.72	12 25 53.3	7.1	2.7	0.18	23	22 35.4	22 41 10.39	8 12 37.3	12.1	4.6	0.32
8	1 6.1	22 18 45.57	11 40 30.9	7.2	2.7	0.18	24	22 33.1	22 42 52.06	8 16 36.0	11.9	4.5	0.31
9	1 8.5	22 25 6.86	10 54 24.7	7.3	2.8	0.19	25	22 31.3	22 44 50.78	8 18 19.0	11.7	4.4	0.31
10	1 10.8	22 31 19.34	-10 7 45.6	7.5	2.8	0.19	26	22 29.7	22 47 5.52	-8 17 49.7	11.5	4.3	0.30
11	1 12.9	22 37 21.63	9 20 45.6	7.6	2.9	0.19	27	22 28.3	22 49 35.32	8 15 11.6	11.3	4.2	0.29
12	1 14.8	22 43 12.18	8 33 38.9	7.8	2.9	0.20	28	22 27.0	22 52 19.28	8 10 28.7	11.1	4.2	0.29
13	1 16.4	22 48 49.30	7 46 42.3	8.0	3.0	0.20	29	22 25.9	22 55 16.42	8 3 44.6	10.9	4.1	0.28
14	1 17.8	22 54 11.09	7 0 13.0	8.2	3.0	0.20	30	22 25.1	22 58 25.92	7 55 3.1	10.7	4.1	0.28
15	1 19.0	22 59 15.58	-6 14 30.2	8.4	3.1	0.21	31	22 24.6	23 1 47.04	-7 44 27.7	10.5	4.0	0.27
16	1 19.8	23 4 0.69	5 29 54.8	8.6	3.2	0.21	Apr. 1	22 24.2	23 5 19.01	-7 32 2.1	10.3	4.0	0.27

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Apr. 1	22 24.2	23 5 19.01	7 32 2.1	10.3	4.0	0.27	May 16	0 5.7	3 40 35.73	+20 7 46.3	6.7	2.5	0.18
2	22 24.0	23 9 1.19	7 17 49.4	10.2	3.9	0.27	17	0 10.7	3 49 34.09	20 46 47.6	6.7	2.5	0.18
3	22 23.9	23 12 52.96	7 1 53.2	10.1	3.9	0.26	18	0 15.8	3 58 35.48	21 23 45.3	6.8	2.5	0.18
4	22 24.0	23 16 53.75	6 44 16.4	9.9	3.8	0.26	19	0 20.9	4 7 38.63	21 58 29.6	6.8	2.6	0.19
5	22 24.2	23 21 3.08	6 25 2.2	9.7	3.7	0.25	20	0 26.0	4 16 42.19	22 30 51.4	6.9	2.6	0.19
6	22 24.5	23 25 20.48	6 4 13.2	9.5	3.6	0.25	21	0 31.1	4 25 44.83	+23 0 43.2	6.9	2.6	0.19
7	22 25.0	23 29 45.55	5 41 52.4	9.4	3.6	0.25	22	0 36.1	4 34 45.13	23 27 59.6	7.0	2.6	0.19
8	22 25.6	23 34 17.92	5 18 2.2	9.3	3.5	0.24	23	0 41.1	4 43 41.76	23 52 36.9	7.1	2.7	0.19
9	22 26.3	23 38 57.24	4 52 45.5	9.1	3.5	0.24	24	0 46.0	4 52 33.43	24 14 32.7	7.1	2.7	0.20
10	22 27.1	23 43 43.27	4 26 4.2	9.0	3.4	0.23	25	0 50.8	5 1 18.94	24 33 46.4	7.2	2.7	0.20
11	22 28.0	23 48 35.79	3 58 1.2	8.8	3.4	0.23	26	0 55.5	5 9 57.24	+24 50 19.1	7.3	2.8	0.20
12	22 29.1	23 53 34.55	3 28 38.3	8.7	3.4	0.22	27	1 0.1	5 18 27.25	25 4 12.9	7.4	2.8	0.20
13	22 30.3	23 58 39.42	2 57 57.8	8.6	3.3	0.22	28	1 4.5	5 26 48.07	25 15 31.3	7.5	2.9	0.21
14	22 31.5	0 3 50.28	2 26 1.8	8.5	3.3	0.21	29	1 8.7	5 34 58.90	25 24 18.5	7.6	2.9	0.21
15	22 32.8	0 9 7.01	1 52 52.5	8.4	3.2	0.21	30	1 12.7	5 42 59.00	25 30 39.7	7.7	3.0	0.22
16	22 34.2	0 14 29.55	1 18 32.0	8.2	3.1	0.21	31	1 16.6	5 50 47.83	+25 34 40.8	7.9	3.0	0.22
17	22 35.7	0 19 57.89	0 43 1.9	8.1	3.1	0.21	June 1	1 20.3	5 58 24.75	25 36 28.0	8.0	3.0	0.22
18	22 37.4	0 25 32.00	0 6 24.7	8.0	3.0	0.20	2	1 23.7	6 5 49.27	25 36 7.8	8.2	3.1	0.23
19	22 39.1	0 31 11.94	+0 31 17.8	7.9	3.0	0.20	3	1 26.9	6 13 1.00	25 33 46.8	8.3	3.1	0.23
20	22 40.9	0 36 57.73	1 10 3.6	7.8	3.0	0.20	4	1 29.9	6 19 59.65	25 29 32.1	8.5	3.2	0.24
21	22 42.8	0 42 49.46	+1 49 50.5	7.7	3.0	0.20	5	1 32.7	6 26 44.79	+25 23 30.5	8.7	3.3	0.24
22	22 44.8	0 48 47.29	2 30 36.4	7.6	2.9	0.20	6	1 35.3	6 33 16.19	25 15 48.9	8.8	3.3	0.24
23	22 46.9	0 54 51.25	3 12 19.0	7.5	2.9	0.19	7	1 37.6	6 39 33.57	25 6 34.6	9.0	3.4	0.25
24	22 49.2	1 1 1.58	3 54 56.1	7.4	2.8	0.19	8	1 39.7	6 45 36.70	24 55 54.2	9.2	3.4	0.25
25	22 51.6	1 7 18.48	4 38 25.1	7.4	2.8	0.19	9	1 41.6	6 51 25.31	24 43 54.4	9.4	3.5	0.26
26	22 54.0	1 13 42.14	+5 22 43.2	7.4	2.8	0.19	10	1 43.2	6 56 59.20	+24 30 42.2	9.6	3.6	0.26
27	22 56.5	1 20 12.77	6 7 47.5	7.3	2.8	0.19	11	1 44.6	7 2 18.09	24 16 24.4	9.8	3.6	0.26
28	22 59.1	1 26 50.59	6 53 34.7	7.2	2.7	0.18	12	1 45.7	7 7 21.81	24 1 6.9	10.0	3.7	0.27
29	23 1.9	1 33 35.89	7 40 1.6	7.2	2.7	0.18	13	1 46.6	7 12 10.11	23 44 56.4	10.2	3.8	0.27
30	23 4.9	1 40 28.89	8 27 3.8	7.1	2.7	0.18	14	1 47.2	7 16 42.71	23 27 59.8	10.4	3.9	0.28
May 1	23 8.0	1 47 29.86	+9 14 37.2	7.1	2.7	0.18	15	1 47.5	7 20 59.39	+23 10 22.8	10.7	4.0	0.29
2	23 11.2	1 54 39.03	10 2 36.6	7.0	2.7	0.18	16	1 47.5	7 24 59.83	22 52 12.0	10.9	4.0	0.29
3	23 14.5	2 1 56.65	10 50 56.7	6.9	2.6	0.18	17	1 47.3	7 28 43.79	22 33 33.3	11.1	4.1	0.30
4	23 17.9	2 9 22.90	11 39 31.3	6.9	2.6	0.18	18	1 46.9	7 32 10.96	22 14 33.3	11.3	4.2	0.30
5	23 21.5	2 16 57.98	12 28 13.5	6.8	2.6	0.18	19	1 46.2	7 35 21.00	21 55 18.0	11.5	4.3	0.31
6	23 25.4	2 24 42.00	+13 16 55.6	6.8	2.6	0.18	20	1 45.1	7 38 13.62	+21 35 53.5	11.8	4.4	0.32
7	23 29.4	2 32 35.04	14 5 29.1	6.8	2.6	0.18	21	1 43.7	7 40 48.51	21 16 26.1	12.0	4.5	0.33
8	23 33.5	2 40 37.00	14 53 45.1	6.7	2.5	0.18	22	1 42.0	7 43 5.35	20 57 1.7	12.3	4.6	0.33
9	23 37.7	2 48 47.85	15 41 33.2	6.7	2.5	0.18	23	1 40.0	7 45 3.82	20 37 46.7	12.5	4.7	0.34
10	23 42.1	2 57 7.31	16 28 42.5	6.7	2.5	0.18	24	1 37.8	7 46 43.66	20 18 47.1	12.8	4.8	0.35
11	23 46.6	3 5 34.97	+17 15 1.5	6.7	2.5	0.18	25	1 35.3	7 48 4.61	+20 0 8.9	13.1	4.9	0.35
12	23 51.2	3 14 10.36	18 0 17.8	6.7	2.5	0.18	26	1 32.4	7 49 6.48	19 41 58.3	13.3	5.0	0.36
13	23 55.9	3 22 52.85	18 44 19.0	6.7	2.5	0.18	27	1 29.1	7 49 49.08	19 24 21.5	13.6	5.1	0.36
15	0 0.7	3 31 41.63	19 26 52.9	6.7	2.5	0.18	28	1 25.5	7 50 12.40	19 7 24.2	13.8	5.2	0.37
16	0 5.7	3 40 35.73	20 7 46.3	6.7	2.5	0.18	29	1 21.6	7 50 16.42	18 51 12.5	14.0	5.3	0.37
17	0 10.7	3 49 34.09	+20 46 47.6	6.7	2.5	0.18	30	1 17.5	7 50 1.32	+18 35 52.1	14.2	5.4	0.38
18	0 15.8	3 58 35.48	+21 23 45.3	6.8	2.5	0.18	July 1	1 13.1	7 49 27.36	+18 21 28.3	14.4	5.4	0.38

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
July 1	1 13.1	7 49 27.36	+18 21 28.3	14.4	5.4	0.38	Aug 16	23 24.3	9 54 1.39	+18 2 49.3	7.0	2.7	0.19
2	1 8.3	7 48 34.98	18 8 6.8	14.5	5.5	0.38	17	23 28.4	9 13 45.02	17 34 1.2	7.0	2.7	0.18
3	1 3.1	7 47 24.92	17 55 52.1	14.7	5.6	0.39	18	23 32.5	9 21 49.21	17 2 55.2	6.9	2.6	0.18
4	0 57.7	7 45 57.93	17 44 49.1	14.9	5.6	0.39	19	23 36.6	9 29 52.42	16 29 40.5	6.9	2.6	0.18
5	0 52.1	7 44 15.08	17 35 1.8	15.1	5.7	0.40	20	23 40.6	9 37 53.32	15 54 27.2	6.8	2.6	0.18
6	0 46.2	7 42 17.70	+17 26 33.7	15.2	5.7	0.40	21	23 44.6	9 45 50.77	+15 17 25.7	6.7	2.5	0.17
7	0 40.1	7 40 7.36	17 19 27.8	15.3	5.8	0.40	22	23 48.6	9 53 43.81	14 38 46.4	6.7	2.5	0.17
8	0 33.8	7 37 45.86	17 13 46.3	15.4	5.8	0.41	23	23 52.4	10 1 31.68	13 58 39.3	6.6	2.5	0.17
9	0 27.4	7 35 15.20	17 9 30.8	15.5	5.9	0.41	24	23 56.1	10 9 13.79	13 17 14.9	6.6	2.5	0.17
10	0 20.9	7 32 37.63	17 6 42.2	15.5	5.9	0.41	25	23 59.8	10 16 49.71	12 34 42.5	6.6	2.5	0.17
11	0 14.3	7 29 55.58	+17 5 20.7	15.4	5.9	0.41	27	0 3.4	10 24 19.13	+11 51 11.2	6.5	2.4	0.17
12	0 7.6	7 27 11.61	17 5 25.2	15.4	5.8	0.41	28	0 6.8	10 31 41.80	11 6 49.7	6.5	2.4	0.17
13	0 0.9	7 24 28.36	17 6 54.0	15.3	5.8	0.40	29	0 10.1	10 38 57.64	10 21 45.9	6.5	2.4	0.17
13 23 54.3		7 21 48.53	17 9 44.9	15.2	5.7	0.40	30	0 13.3	10 46 6.67	9 36 7.0	6.4	2.4	0.17
14	23 47.9	7 19 14.86	17 13 54.3	15.1	5.7	0.40	31	0 16.4	10 53 8.95	8 49 59.9	6.4	2.4	0.17
15	23 41.6	7 16 49.98	+17 19 18.6	14.9	5.7	0.40	Sept. 1	0 19.4	11 0 4.57	+8 3 30.3	6.4	2.4	0.16
16	23 35.5	7 14 36.43	17 25 52.9	14.7	5.6	0.39	2	0 22.2	11 6 53.68	7 16 44.3	6.4	2.4	0.16
17	23 29.5	7 12 36.65	17 33 32.2	14.5	5.5	0.38	3	0 24.9	11 13 36.44	6 29 46.8	6.4	2.4	0.16
18	23 23.8	7 10 52.81	17 42 10.1	14.3	5.4	0.38	4	0 27.6	11 20 13.05	5 42 42.3	6.4	2.4	0.16
19	23 18.4	7 9 26.94	17 51 40.4	14.0	5.3	0.37	5	0 30.2	11 26 43.75	4 55 35.2	6.4	2.4	0.16
20	23 13.4	7 8 20.84	+18 1 56.1	13.7	5.2	0.37	6	0 32.7	11 33 8.79	+4 8 29.2	6.4	2.4	0.16
21	23 8.8	7 7 36.07	18 12 49.3	13.4	5.0	0.36	7	0 35.1	11 39 28.36	3 21 27.7	6.4	2.4	0.16
22	23 4.5	7 7 13.96	18 24 12.8	13.1	4.9	0.35	8	0 37.4	11 45 42.70	2 34 34.0	6.4	2.4	0.16
23	23 0.6	7 7 15.60	18 35 58.1	12.8	4.8	0.34	9	0 39.6	11 51 52.06	1 47 51.3	6.5	2.4	0.16
24	22 57.1	7 7 41.92	18 47 56.3	12.5	4.7	0.33	10	0 41.7	11 57 56.65	1 1 21.9	6.5	2.4	0.16
25	22 54.0	7 8 33.57	+18 59 58.8	12.1	4.5	0.33	11	0 43.7	12 3 56.70	+0 15 8.4	6.5	2.5	0.17
26	22 51.4	7 9 51.10	19 11 56.1	11.8	4.4	0.32	12	0 45.7	12 9 52.41	-0 30 46.9	6.6	2.5	0.17
27	22 49.2	7 11 34.82	19 23 38.3	11.5	4.3	0.31	13	0 47.6	12 15 44.02	1 16 22.1	6.6	2.5	0.17
28	22 47.4	7 13 44.93	19 34 55.2	11.2	4.2	0.30	14	0 49.4	12 21 31.68	2 1 35.0	6.6	2.5	0.17
29	22 46.0	7 16 21.47	19 45 36.8	10.9	4.1	0.29	15	0 51.2	12 27 15.59	2 46 23.8	6.6	2.5	0.17
30	22 45.1	7 19 24.36	+19 55 32.1	10.6	4.0	0.29	16	0 53.0	12 32 55.87	-3 30 46.5	6.6	2.5	0.17
31	22 44.7	7 22 53.38	20 4 30.4	10.3	3.9	0.28	17	0 54.7	12 38 32.71	4 14 41.9	6.7	2.5	0.17
Aug. 1	22 44.7	7 26 48.19	20 12 20.3	10.0	3.8	0.28	18	0 56.3	12 44 6.27	4 58 8.0	6.7	2.5	0.17
2	22 45.1	7 31 8.30	20 18 50.5	9.7	3.7	0.27	19	0 57.8	12 49 36.68	5 41 3.3	6.7	2.6	0.17
3	22 45.9	7 35 53.10	20 23 49.6	9.5	3.6	0.26	20	0 59.3	12 55 4.01	6 23 26.4	6.8	2.6	0.17
4	22 47.1	7 41 1.81	+20 27 6.3	9.2	3.5	0.26	21	1 0.8	13 0 28.35	-7 5 15.6	6.8	2.6	0.18
5	22 48.7	7 46 33.51	20 28 29.7	8.9	3.4	0.25	22	1 2.2	13 5 49.84	7 46 29.6	6.9	2.6	0.18
6	22 50.6	7 52 27.17	20 27 49.4	8.7	3.3	0.24	23	1 3.6	13 11 8.45	8 27 6.8	7.0	2.6	0.18
7	22 52.9	7 58 41.49	20 24 55.4	8.5	3.2	0.23	24	1 4.9	13 16 24.24	9 7 5.7	7.0	2.6	0.18
8	22 55.5	8 5 15.03	20 19 39.0	8.3	3.1	0.22	25	1 6.2	13 21 37.29	9 46 24.7	7.1	2.6	0.18
9	22 58.4	8 12 6.24	+20 11 52.6	8.1	3.0	0.22	26	1 7.4	13 26 47.54	-10 25 2.4	7.1	2.6	0.18
10	23 1.5	8 19 13.36	20 1 30.1	8.0	2.9	0.22	27	1 8.6	13 31 54.98	11 2 57.2	7.2	2.7	0.19
11	23 4.9	8 26 34.54	19 48 27.2	7.8	2.9	0.21	28	1 9.7	13 36 59.53	11 40 7.2	7.3	2.7	0.19
12	23 8.5	8 34 7.84	19 32 41.2	7.7	2.8	0.21	29	1 10.8	13 42 1.14	12 16 30.8	7.3	2.8	0.19
13	23 12.3	8 41 51.22	19 14 12.0	7.5	2.8	0.20	30	1 11.8	13 46 59.68	12 52 6.2	7.4	2.8	0.19
14	23 16.2	8 49 42.61	+18 53 0.8	7.3	2.8	0.20	Oct. 1	1 12.8	13 51 54.97	-13 26 51.4	7.5	2.8	0.20
15	23 20.2	8 57 39.98	+18 29 11.5	7.1	2.8	0.19	2	1 13.7	13 56 46.87	-14 0 44.3	7.6	2.9	0.20

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Oct. 1	1 12.8	13 51 54.97	-13 26 51.4	7.5	2.8	0.20	Nov. 15	22 34.6	14 14 35.83	-11 1 31.8	10.0	3.9	0.26
2	1 13.7	13 56 46.87	14 0 44.3	7.6	2.9	0.20	16	22 32.8	14 16 45.98	11 10 2.3	9.7	3.7	0.25
3	1 14.5	14 1 35.17	14 33 43.0	7.7	2.9	0.20	17	22 31.5	14 19 25.45	11 22 23.4	9.4	3.6	0.25
4	1 15.3	14 6 19.56	15 5 45.0	7.8	2.9	0.21	18	22 30.7	14 22 31.24	11 38 6.4	9.2	3.5	0.24
5	1 16.0	14 10 59.69	15 36 47.9	7.9	3.0	0.21	19	22 30.2	14 26 0.50	11 56 43.1	8.9	3.4	0.23
6	1 16.7	14 15 35.18	-16 6 48.5	8.0	3.0	0.21	20	22 30.1	14 29 50.56	-12 17 47.4	8.7	3.3	0.23
7	1 17.3	14 20 5.58	16 35 44.2	8.1	3.1	0.22	21	22 30.2	14 33 59.02	12 40 55.0	8.5	3.2	0.22
8	1 17.8	14 24 30.37	17 3 31.8	8.2	3.1	0.22	22	22 30.7	14 38 23.68	13 5 44.1	8.3	3.2	0.22
9	1 18.2	14 28 48.93	17 30 7.7	8.4	3.1	0.22	23	22 31.5	14 43 2.63	13 31 54.7	8.1	3.1	0.21
10	1 18.4	14 33 0.60	17 55 28.4	8.5	3.2	0.23	24	22 32.5	14 47 54.16	13 59 8.8	8.0	3.0	0.21
11	1 18.4	14 37 4.59	-18 19 29.5	8.7	3.2	0.23	25	22 33.6	14 52 56.83	-14 27 10.8	7.8	2.9	0.20
12	1 18.3	14 40 59.99	18 42 6.4	8.8	3.3	0.24	26	22 34.8	14 58 9.33	14 55 46.7	7.7	2.9	0.20
13	1 18.3	14 44 45.79	19 3 14.2	8.9	3.4	0.24	27	22 36.2	15 3 30.55	15 24 43.9	7.5	2.9	0.20
14	1 18.0	14 48 20.86	19 22 47.0	9.1	3.5	0.24	28	22 37.7	15 8 59.54	15 53 51.9	7.4	2.8	0.19
15	1 17.4	14 51 43.92	19 40 38.6	9.2	3.5	0.25	29	22 39.3	15 14 35.50	16 23 0.7	7.3	2.8	0.19
16	1 16.6	14 54 53.57	-19 56 42.1	9.4	3.6	0.26	30	22 41.0	15 20 17.71	-16 52 2.3	7.2	2.7	0.19
17	1 15.6	14 57 48.25	20 10 49.6	9.6	3.6	0.26	Dec. 1	22 42.9	15 26 5.55	17 20 49.0	7.1	2.7	0.19
18	1 14.3	15 0 26.21	20 22 52.7	9.8	3.7	0.26	2	22 44.9	15 31 58.58	17 49 14.1	7.0	2.7	0.19
19	1 12.7	15 2 45.57	20 32 41.6	10.1	3.8	0.27	3	22 46.9	15 37 56.30	18 17 12.2	6.9	2.7	0.19
20	1 10.8	15 4 44.29	20 40 5.8	10.3	3.9	0.28	4	22 49.0	15 43 58.38	18 44 37.9	6.8	2.7	0.19
21	1 8.4	15 6 20.20	-20 44 53.7	10.6	4.0	0.28	5	22 51.1	15 50 4.51	-19 11 26.6	6.7	2.6	0.18
22	1 5.6	15 7 31.08	20 46 52.5	10.8	4.1	0.29	6	22 53.3	15 56 14.36	19 37 34.4	6.7	2.5	0.18
23	1 2.4	15 8 14.63	20 45 48.2	11.0	4.2	0.30	7	22 55.6	16 2 27.77	20 2 57.6	6.6	2.5	0.18
24	0 58.7	15 8 28.59	20 41 26.1	11.3	4.3	0.30	8	22 57.9	16 8 44.50	20 27 32.5	6.6	2.5	0.18
25	0 54.4	15 8 10.91	20 33 31.3	11.5	4.4	0.31	9	23 0.3	16 15 4.42	20 51 16.4	6.5	2.5	0.18
26	0 49.7	15 7 19.79	-20 21 49.2	11.8	4.5	0.32	10	23 2.7	16 21 27.35	-21 14 6.7	6.5	2.4	0.18
27	0 44.3	15 5 53.92	20 6 6.9	12.0	4.5	0.32	11	23 5.2	16 27 53.17	21 36 0.6	6.5	2.4	0.17
28	0 38.3	15 3 52.71	19 46 13.4	12.3	4.6	0.33	12	23 7.7	16 34 21.76	21 56 55.7	6.5	2.4	0.17
29	0 31.8	15 1 16.53	19 22 2.1	12.5	4.6	0.33	13	23 10.3	16 40 53.01	22 16 49.8	6.4	2.4	0.17
30	0 24.7	14 58 6.84	18 53 33.6	12.7	4.7	0.33	14	23 12.9	16 47 26.86	22 35 41.1	6.4	2.4	0.17
31	0 17.1	14 54 26.62	-18 20 57.9	12.8	4.8	0.34	15	23 15.5	16 54 3.21	-22 53 27.5	6.3	2.4	0.17
Nov. 1	0 9.1	14 50 20.34	17 44 35.8	13.0	4.9	0.34	16	23 18.2	17 0 41.99	23 10 7.2	6.3	2.4	0.17
2	0 0.8	14 45 53.87	17 5 0.8	13.1	5.0	0.34	17	23 21.0	17 7 23.07	23 25 38.4	6.3	2.4	0.17
3	23 52.2	14 41 14.58	16 23 0.9	13.1	5.0	0.34	18	23 23.8	17 14 6.46	23 39 59.8	6.3	2.4	0.17
4	23 43.6	14 36 30.88	15 39 35.2	13.0	4.9	0.34	19	23 26.6	17 20 52.06	23 53 9.2	6.2	2.3	0.17
5	23 35.0	14 31 51.58	-14 55 53.3	12.9	4.9	0.33	20	23 29.5	17 27 39.75	-24 5 5.5	6.2	2.3	0.17
6	23 26.7	14 27 25.77	14 13 9.2	12.8	4.8	0.33	21	23 32.4	17 34 29.54	24 15 47.1	6.2	2.3	0.17
7	23 18.7	14 23 21.69	13 32 36.3	12.7	4.8	0.33	22	23 35.3	17 41 21.29	24 25 12.6	6.2	2.3	0.17
8	23 11.2	14 19 46.62	12 55 21.9	12.5	4.7	0.32	23	23 38.2	17 48 14.97	24 33 20.4	6.2	2.3	0.17
9	23 4.3	14 16 46.37	12 22 23.2	12.2	4.6	0.32	24	23 41.2	17 55 10.48	24 40 9.5	6.2	2.3	0.17
10	22 58.0	14 14 25.02	-11 54 23.1	11.9	4.5	0.31	25	23 44.2	18 2 7.75	-24 45 38.3	6.1	2.3	0.17
11	22 52.4	14 12 45.08	11 31 49.4	11.6	4.4	0.30	26	23 47.2	18 9 6.65	24 49 45.5	6.1	2.3	0.17
12	22 47.5	14 11 47.38	11 14 55.2	11.3	4.3	0.29	27	23 50.2	18 16 7.18	24 52 30.0	6.1	2.3	0.17
13	22 43.3	14 11 31.31	11 3 40.5	10.9	4.2	0.29	28	23 53.3	18 23 9.14	24 53 50.5	6.1	2.3	0.17
14	22 39.8	14 11 55.63	10 57 55.0	10.6	4.1	0.28	29	23 56.4	18 30 12.48	24 53 45.6	6.1	2.3	0.17
15	22 36.9	14 12 58.04	-10 57 20.3	10.3	4.0	0.27	30	23 59.5	18 37 17.15	-24 52 14.5	6.1	2.3	0.17
	22 34.6	14 14 35.83	-11 1 31.8	10.0	3.9	0.26	32	0 2.7	18 44 22.94	-24 49 16.0	6.2	2.3	0.17

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Jan. 0	21 58.4	16 40 43.30	-20 56 18.1	6.3	6.1	0.44	Feb. 15	23 2.3	20 46 4.95	-18 44 19.4	5.6	5.4	0.38
1	21 59.7	16 45 58.71	21 8 21.2	6.3	6.1	0.44	16	23 3.5	20 51 11.86	18 26 24.6	5.6	5.4	0.38
2	22 1.1	16 51 15.05	21 19 48.0	6.3	6.1	0.44	17	23 4.6	20 56 17.65	18 7 58.1	5.6	5.4	0.38
3	22 2.4	16 56 32.28	21 30 38.1	6.3	6.1	0.44	18	23 5.7	21 1 22.30	17 49 0.4	5.5	5.4	0.38
4	22 3.7	17 1 50.38	21 40 51.0	6.2	6.0	0.43	19	23 6.8	21 6 25.79	17 29 32.2	5.5	5.3	0.37
5	22 5.1	17 7 9.31	-21 50 26.2	6.2	6.0	0.43	20	23 7.9	21 11 28.12	-17 9 34.3	5.5	5.3	0.37
6	22 6.5	17 12 29.02	21 59 23.2	6.2	6.0	0.43	21	23 9.0	21 16 29.29	16 49 7.2	5.5	5.3	0.37
7	22 7.9	17 17 49.47	22 7 41.4	6.2	6.0	0.43	22	23 10.1	21 21 29.29	16 28 11.6	5.5	5.3	0.37
8	22 9.3	17 23 10.63	22 15 20.6	6.2	6.0	0.43	23	23 11.1	21 26 28.14	16 6 48.4	5.5	5.3	0.37
9	22 10.8	17 28 32.43	22 22 20.2	6.1	5.9	0.43	24	23 12.1	21 31 25.83	15 44 58.2	5.5	5.3	0.37
10	22 12.2	17 33 54.82	-22 28 40.0	6.1	5.9	0.43	25	23 13.1	21 36 22.37	-15 22 41.9	5.5	5.3	0.37
11	22 13.6	17 39 17.76	22 34 19.5	6.1	5.9	0.43	26	23 14.1	21 41 17.77	14 59 59.9	5.4	5.3	0.37
12	22 15.1	17 44 41.19	22 39 18.4	6.1	5.9	0.43	27	23 15.1	21 46 12.04	14 36 53.2	5.4	5.3	0.37
13	22 16.5	17 50 5.05	22 43 36.6	6.1	5.9	0.43	28	23 16.0	21 51 5.19	14 13 22.3	5.4	5.3	0.36
14	22 17.9	17 55 29.29	22 47 13.7	6.0	5.8	0.42	Mar. 1	23 16.9	21 55 57.25	13 49 28.1	5.4	5.2	0.36
15	22 19.4	18 0 53.84	-22 50 9.4	6.0	5.8	0.42	2	23 17.8	22 0 48.23	-13 25 11.2	5.4	5.2	0.36
16	22 20.8	18 6 18.66	22 52 23.6	6.0	5.8	0.42	3	23 18.7	22 5 38.15	13 0 32.4	5.4	5.2	0.36
17	22 22.3	18 11 43.68	22 53 56.1	6.0	5.8	0.42	4	23 19.6	22 10 27.03	12 35 32.2	5.4	5.2	0.36
18	22 23.8	18 17 8.84	22 54 47.0	6.0	5.8	0.42	5	23 20.5	22 15 14.90	12 10 11.6	5.4	5.2	0.36
19	22 25.3	18 22 34.06	22 54 56.1	5.9	5.7	0.42	6	23 21.3	22 20 1.77	11 44 31.3	5.4	5.2	0.36
20	22 26.8	18 27 59.30	-22 54 23.3	5.9	5.7	0.41	7	23 22.1	22 24 47.68	-11 18 32.1	5.4	5.2	0.36
21	22 28.3	18 33 24.50	22 53 8.4	5.9	5.7	0.41	8	23 22.9	22 29 32.65	10 52 14.5	5.4	5.2	0.36
22	22 29.8	18 38 49.59	22 51 11.7	5.9	5.7	0.41	9	23 23.7	22 34 16.70	10 25 39.4	5.3	5.2	0.36
23	22 31.3	18 44 14.51	22 48 33.1	5.9	5.7	0.41	10	23 24.5	22 38 59.88	9 58 47.3	5.3	5.1	0.35
24	22 32.7	18 49 39.19	22 45 12.8	5.8	5.6	0.41	11	23 25.3	22 43 42.21	9 31 39.3	5.3	5.1	0.35
25	22 34.2	18 55 3.59	-22 41 10.8	5.8	5.6	0.41	12	23 26.0	22 48 23.72	-9 4 16.0	5.3	5.1	0.35
26	22 35.6	19 0 27.65	22 36 27.3	5.8	5.6	0.41	13	23 26.7	22 53 4.44	8 36 38.2	5.3	5.1	0.35
27	22 37.0	19 5 51.31	22 31 2.5	5.8	5.6	0.41	14	23 27.4	22 57 44.40	8 8 46.5	5.3	5.1	0.35
28	22 38.5	19 11 14.51	22 24 56.5	5.8	5.6	0.41	15	23 28.1	23 2 23.64	7 40 41.7	5.3	5.1	0.35
29	22 39.9	19 16 37.21	22 18 9.4	5.8	5.6	0.40	16	23 28.8	23 7 2.20	7 12 24.5	5.3	5.1	0.35
30	22 41.3	19 21 59.35	-22 10 41.6	5.8	5.6	0.40	17	23 29.5	23 11 40.09	-6 43 55.7	5.3	5.1	0.35
31	22 42.7	19 27 20.89	22 2 33.6	5.8	5.6	0.40	18	23 30.2	23 16 17.36	6 15 16.0	5.3	5.1	0.35
Feb. 1	22 44.1	19 32 41.80	21 53 45.4	5.8	5.6	0.40	19	23 30.8	23 20 54.04	5 46 26.2	5.3	5.1	0.35
2	22 45.5	19 38 2.02	21 44 17.5	5.7	5.5	0.40	20	23 31.5	23 25 30.16	5 17 27.0	5.3	5.1	0.34
3	22 46.9	19 43 21.50	21 34 10.2	5.7	5.5	0.40	21	23 32.2	23 30 5.77	4 48 19.2	5.3	5.1	0.34
4	22 48.3	19 48 40.20	-21 23 24.0	5.7	5.5	0.40	22	23 32.8	23 34 40.89	-4 19 3.5	5.2	5.1	0.34
5	22 49.6	19 53 58.09	21 11 59.3	5.7	5.5	0.40	23	23 33.5	23 39 15.58	3 49 40.7	5.2	5.1	0.34
6	22 51.0	19 59 15.13	20 59 56.4	5.7	5.5	0.40	24	23 34.1	23 43 49.85	3 20 11.5	5.2	5.1	0.34
7	22 52.3	20 4 31.28	20 47 15.9	5.7	5.5	0.40	25	23 34.7	23 48 23.75	2 50 36.5	5.2	5.0	0.34
8	22 53.6	20 9 46.50	20 33 58.2	5.6	5.5	0.39	26	23 35.3	23 52 57.31	2 20 56.4	5.2	5.0	0.34
9	22 54.9	20 15 0.78	-20 20 3.8	5.6	5.4	0.39	27	23 35.9	23 57 30.58	-1 51 12.0	5.2	5.0	0.34
10	22 56.2	20 20 14.07	20 5 33.3	5.6	5.4	0.39	28	23 36.5	0 2 3.60	1 21 24.1	5.2	5.0	0.34
11	22 57.4	20 25 26.37	19 50 27.3	5.6	5.4	0.39	29	23 37.1	0 6 36.44	0 51 33.4	5.2	5.0	0.34
12	22 58.7	20 30 37.62	19 34 46.3	5.6	5.4	0.39	30	23 37.7	0 11 9.11	-0 21 40.5	5.2	5.0	0.33
13	22 59.9	20 35 47.82	19 18 30.9	5.6	5.4	0.38	31	23 38.3	0 15 41.67	+ 0 8 14.0	5.2	5.0	0.33
14	23 1.1	20 40 56.94	-19 1 41.7	5.6	5.4	0.38	Apr. 1	23 38.9	0 20 14.16	+ 0 38 9.3	5.2	5.0	0.33
15	23 2.3	20 46 4.95	-18 44 19.4	5.6	5.4	0.38	2	23 39.5	0 24 46.61	+ 1 8 4.6	5.2	5.0	0.33

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Apr. 1	23 38.9	0 20 14.16	+ 0 38 9.3	5.2	5.0	0.33	May 17	0 14.7	3 53 33.88	+20 2 48.5	5.1	5.0	0.35
2	23 39.5	0 24 46.61	1 8 4.6	5.2	5.0	0.33	18	0 15.9	3 58 40.09	20 20 15.4	5.1	5.0	0.35
3	23 40.1	0 29 19.08	1 37 59.3	5.2	5.0	0.33	19	0 17.1	4 3 47.39	20 37 9.0	5.1	5.0	0.35
4	23 40.7	0 33 51.60	2 7 52.7	5.2	5.0	0.33	20	0 18.3	4 8 55.76	20 53 28.8	5.1	5.0	0.35
5	23 41.3	0 38 24.22	2 37 44.1	5.2	5.0	0.33	21	0 19.5	4 14 5.18	21 9 14.0	5.1	5.0	0.36
6	23 41.9	0 42 56.98	+ 3 7 32.6	5.2	5.0	0.33	22	0 20.7	4 19 15.63	+21 24 24.2	5.1	5.0	0.36
7	23 42.5	0 47 29.93	3 37 17.7	5.2	5.0	0.33	23	0 21.9	4 24 27.09	21 38 58.6	5.1	5.0	0.36
8	23 43.1	0 52 3.10	4 6 58.5	5.2	5.0	0.33	24	0 23.2	4 29 39.52	21 52 56.6	5.1	5.0	0.36
9	23 43.7	0 56 36.55	4 36 34.5	5.1	5.0	0.33	25	0 24.5	4 34 52.89	22 6 17.8	5.1	5.0	0.36
10	23 44.3	1 1 10.31	5 6 5.0	5.1	5.0	0.33	26	0 25.8	4 40 7.18	22 19 1.5	5.1	5.0	0.36
11	23 44.9	1 5 44.42	+ 5 35 29.1	5.1	5.0	0.33	27	0 27.1	4 45 22.36	+22 31 7.3	5.2	5.0	0.36
12	23 45.6	1 10 18.92	6 4 46.1	5.1	5.0	0.33	28	0 28.4	4 50 38.38	22 42 34.6	5.2	5.0	0.36
13	23 46.2	1 14 53.85	6 33 55.3	5.1	5.0	0.33	29	0 29.7	4 55 55.21	22 53 23.1	5.2	5.0	0.36
14	23 46.8	1 19 29.26	7 2 56.1	5.1	5.0	0.33	30	0 31.0	5 1 12.81	23 3 32.1	5.2	5.0	0.36
15	23 47.5	1 24 5.18	7 31 47.5	5.1	5.0	0.33	31	0 32.4	5 6 31.14	23 13 1.2	5.2	5.0	0.36
16	23 48.2	1 28 41.64	+ 8 0 29.0	5.1	5.0	0.33	June 1	0 33.8	5 11 50.15	+23 21 50.0	5.2	5.0	0.36
17	23 48.9	1 33 18.68	8 28 59.8	5.1	5.0	0.33	2	0 35.2	5 17 9.80	23 29 58.2	5.2	5.0	0.36
18	23 49.6	1 37 56.32	8 57 19.1	5.1	5.0	0.33	3	0 36.6	5 22 30.04	23 37 25.3	5.2	5.0	0.36
19	23 50.3	1 42 34.62	9 25 26.2	5.1	5.0	0.33	4	0 38.0	5 27 50.81	23 44 11.1	5.2	5.0	0.36
20	23 51.0	1 47 13.59	9 53 20.2	5.1	5.0	0.33	5	0 39.4	5 33 12.09	23 50 15.1	5.2	5.0	0.36
21	23 51.7	1 51 53.28	+10 21 0.6	5.1	5.0	0.33	6	0 40.8	5 38 33.80	+23 55 37.0	5.2	5.0	0.36
22	23 52.4	1 56 33.71	10 48 26.6	5.1	5.0	0.33	7	0 42.2	5 43 55.90	24 0 16.7	5.2	5.1	0.36
23	23 53.1	2 1 14.92	11 15 37.5	5.1	5.0	0.33	8	0 43.6	5 49 18.34	24 4 14.1	5.2	5.1	0.36
24	23 53.9	2 5 56.93	11 42 32.5	5.1	5.0	0.34	9	0 45.1	5 54 41.03	24 7 28.8	5.2	5.1	0.37
25	23 54.6	2 10 39.77	12 9 10.8	5.1	5.0	0.34	10	0 46.5	6 0 3.95	24 10 0.6	5.2	5.1	0.37
26	23 55.4	2 15 23.48	+12 35 31.7	5.1	5.0	0.34	11	0 48.0	6 5 27.01	+24 11 49.5	5.2	5.1	0.37
27	23 56.2	2 20 8.08	13 1 34.5	5.1	5.0	0.34	12	0 49.4	6 10 50.17	24 12 55.3	5.2	5.1	0.37
28	23 57.0	2 24 53.61	13 27 18.5	5.1	5.0	0.34	13	0 50.8	6 16 13.36	24 13 17.9	5.2	5.1	0.37
29	23 57.8	2 29 40.09	13 52 42.9	5.1	5.0	0.34	14	0 52.2	6 21 36.51	24 12 57.4	5.2	5.1	0.37
30	23 58.7	2 34 27.56	14 17 46.9	5.1	5.0	0.34	15	0 53.7	6 26 59.57	24 11 53.7	5.3	5.1	0.37
May 1	23 59.6	2 39 16.02	+14 42 29.9	5.1	4.9	0.34	16	0 55.1	6 32 22.48	+24 10 7.0	5.3	5.1	0.37
3	0 0.5	2 44 5.49	15 6 51.0	5.1	4.9	0.34	17	0 56.5	6 37 45.16	24 7 37.1	5.3	5.1	0.37
4	0 1.4	2 48 56.01	15 30 49.7	5.1	4.9	0.34	18	0 58.0	6 43 7.57	24 4 24.3	5.3	5.1	0.37
5	0 2.3	2 53 47.59	15 54 25.0	5.1	4.9	0.34	19	0 59.4	6 48 29.62	24 0 28.7	5.3	5.1	0.37
6	0 3.2	2 58 40.25	16 17 36.4	5.1	4.9	0.34	20	1 0.8	6 53 51.25	23 55 50.4	5.3	5.1	0.37
7	0 4.2	3 3 34.01	+16 40 23.0	5.1	4.9	0.34	21	1 2.2	6 59 12.42	+23 50 29.6	5.3	5.1	0.37
8	0 5.1	3 8 28.88	17 2 44.1	5.1	4.9	0.34	22	1 3.6	7 4 33.05	23 44 26.5	5.3	5.1	0.37
9	0 6.1	3 13 24.88	17 24 39.0	5.1	4.9	0.35	23	1 5.0	7 9 53.09	23 37 41.3	5.3	5.1	0.38
10	0 7.1	3 18 22.01	17 46 7.0	5.1	4.9	0.35	24	1 6.4	7 15 12.47	23 30 14.6	5.3	5.2	0.38
11	0 8.1	3 23 20.28	18 7 7.4	5.1	4.9	0.35	25	1 7.8	7 20 31.16	23 22 6.4	5.4	5.2	0.38
12	0 9.2	3 28 19.70	+18 27 39.4	5.1	4.9	0.35	26	1 9.2	7 25 49.12	+23 13 17.1	5.4	5.2	0.38
13	0 10.3	3 33 20.26	18 47 42.2	5.1	4.9	0.35	27	1 10.5	7 31 6.28	23 3 47.1	5.4	5.2	0.38
14	0 11.4	3 38 21.96	19 7 15.2	5.1	4.9	0.35	28	1 11.8	7 36 22.60	22 53 36.7	5.4	5.2	0.38
15	0 12.5	3 43 24.80	19 26 17.7	5.1	4.9	0.35	29	1 13.1	7 41 38.03	22 42 46.4	5.4	5.2	0.38
16	0 13.6	3 48 28.78	19 44 49.0	5.1	4.9	0.35	30	1 14.4	7 46 52.54	22 31 16.6	5.4	5.2	0.38
17	0 14.7	3 53 33.88	+20 2 48.5	5.1	5.0	0.35	July 1	1 15.7	7 52 6.08	+22 19 7.8	5.4	5.2	0.38
18	0 15.9	3 58 40.09	+20 20 15.4	5.1	5.0	0.35	2	1 17.0	7 57 18.61	+22 6 20.4	5.4	5.2	0.38

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
July 1	1 15.7	7 52 6.08	+22 19 7.8	5.4	5.2	0.38	Aug. 16	1 54.0	11 31 53.78	+ 4 17 6.5	6.2	6.0	0.40
2	1 17.0	7 57 18.61	22 6 20.4	5.4	5.2	0.38	17	1 54.5	11 36 18.50	3 46 35.8	6.2	6.0	0.41
3	1 18.2	8 2 30.11	21 52 54.9	5.4	5.2	0.38	18	1 55.0	11 40 42.77	3 15 58.6	6.3	6.1	0.41
4	1 19.4	8 7 40.55	21 38 51.9	5.5	5.3	0.38	19	1 55.4	11 45 6.63	2 45 15.8	6.3	6.1	0.41
5	1 20.6	8 12 49.90	21 24 11.7	5.5	5.3	0.38	20	1 55.8	11 49 30.10	2 14 27.9	6.3	6.1	0.41
6	1 21.8	8 17 58.13	+21 8 55.1	5.5	5.3	0.38	21	1 56.3	11 53 53.22	+ 1 43 35.8	6.3	6.1	0.41
7	1 23.0	8 23 5.21	20 53 2.5	5.5	5.3	0.38	22	1 56.7	11 58 16.04	1 12 40.1	6.3	6.2	0.41
8	1 24.2	8 28 11.11	20 36 34.5	5.5	5.3	0.38	23	1 57.1	12 2 38.62	0 41 41.3	6.4	6.2	0.41
9	1 25.3	8 33 15.82	20 19 31.9	5.5	5.3	0.38	24	1 57.6	12 7 0.97	+ 0 10 40.4	6.4	6.2	0.41
10	1 26.4	8 38 19.33	20 1 55.1	5.5	5.3	0.38	25	1 58.0	12 11 23.13	- 0 20 22.0	6.4	6.2	0.41
11	1 27.5	8 43 21.64	+19 43 45.0	5.5	5.3	0.38	26	1 58.4	12 15 45.16	- 0 51 25.3	6.5	6.2	0.41
12	1 28.6	8 48 22.71	19 25 2.0	5.5	5.3	0.38	27	1 58.8	12 20 7.09	1 22 28.7	6.5	6.3	0.42
13	1 29.7	8 53 22.54	19 5 46.9	5.6	5.3	0.38	28	1 59.2	12 24 28.96	1 53 31.6	6.6	6.3	0.42
14	1 30.7	8 58 21.12	18 46 0.3	5.6	5.4	0.38	29	1 59.7	12 28 50.81	2 24 33.4	6.6	6.3	0.42
15	1 31.7	9 3 18.43	18 25 42.9	5.6	5.4	0.38	30	2 0.1	12 33 12.68	2 55 33.2	6.6	6.3	0.42
16	1 32.7	9 8 14.48	+18 4 55.5	5.6	5.4	0.38	31	2 0.5	12 37 34.63	- 3 26 30.5	6.6	6.4	0.42
17	1 33.7	9 13 9.27	17 43 38.7	5.6	5.4	0.38	Sept. 1	2 0.9	12 41 56.71	3 57 24.6	6.7	6.4	0.43
18	1 34.6	9 18 2.78	17 21 53.2	5.7	5.4	0.38	2	2 1.3	12 46 18.95	4 28 14.9	6.7	6.4	0.43
19	1 35.5	9 22 55.02	16 59 39.8	5.7	5.5	0.38	3	2 1.8	12 50 41.39	4 59 0.5	6.7	6.5	0.43
20	1 36.4	9 27 46.01	16 36 59.1	5.7	5.5	0.38	4	2 2.2	12 55 4.08	5 29 40.7	6.8	6.5	0.44
21	1 37.3	9 32 35.73	+16 13 51.8	5.7	5.5	0.38	5	2 2.6	12 59 27.05	- 6 0 15.0	6.8	6.5	0.44
22	1 38.2	9 37 24.21	15 50 18.9	5.7	5.5	0.38	6	2 3.1	13 3 50.34	6 30 42.7	6.8	6.6	0.44
23	1 39.0	9 42 11.44	15 26 20.9	5.8	5.5	0.38	7	2 3.6	13 8 14.01	7 1 3.2	6.9	6.6	0.45
24	1 39.8	9 46 57.45	15 1 58.5	5.8	5.6	0.38	8	2 4.0	13 12 38.09	7 31 15.6	6.9	6.6	0.45
25	1 40.6	9 51 42.25	14 37 12.5	5.8	5.6	0.38	9	2 4.5	13 17 2.62	8 1 19.2	6.9	6.7	0.45
26	1 41.4	9 56 25.85	+14 12 3.7	5.8	5.6	0.38	10	2 5.0	13 21 27.63	- 8 31 13.3	7.0	6.7	0.45
27	1 42.2	10 1 8.28	13 46 32.7	5.8	5.6	0.38	11	2 5.5	13 25 53.16	9 0 57.3	7.0	6.7	0.46
28	1 42.9	10 5 49.55	13 20 40.4	5.8	5.6	0.39	12	2 6.0	13 30 19.25	9 30 30.4	7.0	6.8	0.46
29	1 43.6	10 10 29.69	12 54 27.3	5.9	5.6	0.39	13	2 6.5	13 34 45.93	9 59 51.9	7.0	6.8	0.46
30	1 44.3	10 15 8.72	12 27 54.3	5.9	5.6	0.39	14	2 7.0	13 39 13.22	10 29 1.0	7.1	6.8	0.47
31	1 45.0	10 19 46.68	+12 1 2.0	5.9	5.7	0.39	15	2 7.5	13 43 41.16	-10 57 57.1	7.1	6.9	0.47
Aug. 1	1 45.7	10 24 23.59	11 33 51.2	5.9	5.7	0.39	16	2 8.0	13 48 9.77	11 26 39.4	7.2	6.9	0.47
2	1 46.3	10 28 59.47	11 6 22.4	5.9	5.7	0.39	17	2 8.5	13 52 39.09	11 55 7.2	7.2	7.0	0.48
3	1 47.0	10 33 34.36	10 38 36.5	6.0	5.7	0.39	18	2 9.1	13 57 9.15	12 23 19.7	7.2	7.0	0.48
4	1 47.6	10 38 8.30	10 10 34.2	6.0	5.7	0.39	19	2 9.7	14 1 39.98	12 51 16.2	7.2	7.0	0.48
5	1 48.2	10 42 41.32	+ 9 42 16.3	6.0	5.7	0.39	20	2 10.3	14 6 11.59	-13 18 56.0	7.3	7.1	0.49
6	1 48.8	10 47 13.45	9 13 43.5	6.0	5.7	0.39	21	2 10.9	14 10 44.01	13 46 18.4	7.3	7.1	0.49
7	1 49.4	10 51 44.73	8 44 56.3	6.0	5.8	0.39	22	2 11.5	14 15 17.27	14 13 22.5	7.4	7.2	0.49
8	1 49.9	10 56 15.20	8 15 55.4	6.1	5.8	0.39	23	2 12.1	14 19 51.40	14 40 7.7	7.4	7.2	0.50
9	1 50.5	11 0 44.89	7 46 41.7	6.1	5.8	0.39	24	2 12.7	14 24 26.40	15 6 33.4	7.4	7.2	0.50
10	1 51.0	11 5 13.83	+ 7 17 15.9	6.1	5.8	0.39	25	2 13.4	14 29 2.31	-15 32 38.7	7.5	7.3	0.50
11	1 51.5	11 9 42.05	6 47 38.8	6.1	5.9	0.39	26	2 14.0	14 33 39.13	15 58 23.0	7.5	7.3	0.51
12	1 52.0	11 14 9.61	6 17 51.0	6.1	5.9	0.40	27	2 14.7	14 38 16.89	16 23 45.4	7.6	7.4	0.51
13	1 52.5	11 18 36.52	5 47 53.0	6.2	5.9	0.40	28	2 15.4	14 42 55.61	16 48 45.3	7.6	7.4	0.51
14	1 53.0	11 23 2.82	5 17 45.8	6.2	5.9	0.40	29	2 16.1	14 47 35.30	17 13 22.0	7.7	7.4	0.52
15	1 53.5	11 27 28.56	+ 4 47 30.1	6.2	6.0	0.40	30	2 16.8	14 52 15.99	-17 37 34.7	7.7	7.5	0.52
16	1 54.0	11 31 53.78	+ 4 17 6.5	6.2	6.0	0.40	Oct. 1	2 17.6	14 56 57.68	-18 1 22.6	7.8	7.5	0.53

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Oct. 1	2 17.6	14 56 57.68	-18 1 22.6	7.8	7.5	0.53	Nov. 16	3 4.1	18 44 53.83	-26 0 41.3	10.8	10.6	0.78
2	2 18.4	15 1 40.39	18 24 45.2	7.9	7.6	0.53	17	3 5.0	18 49 46.85	25 55 33.9	10.9	10.7	0.79
3	2 19.2	15 6 24.12	18 47 41.8	7.9	7.6	0.54	18	3 5.9	18 54 38.45	25 49 47.0	11.0	10.8	0.80
4	2 20.0	15 11 8.89	19 10 11.6	7.9	7.6	0.54	19	3 6.8	18 59 28.57	25 43 21.1	11.1	10.9	0.81
5	2 20.8	15 15 54.69	19 32 13.8	8.0	7.7	0.55	20	3 7.7	19 4 17.10	25 36 16.6	11.2	11.0	0.82
6	2 21.6	15 20 41.53	-19 53 47.9	8.0	7.7	0.55	21	3 8.5	19 9 3.97	-25 28 33.9	11.3	11.1	0.82
7	2 22.5	15 25 29.42	20 14 52.9	8.1	7.8	0.56	22	3 9.3	19 13 49.09	25 20 13.6	11.5	11.2	0.83
8	2 23.4	15 30 18.33	20 35 28.5	8.1	7.8	0.56	23	3 10.1	19 18 32.37	25 11 16.5	11.6	11.3	0.83
9	2 24.3	15 35 8.26	20 55 33.8	8.1	7.9	0.56	24	3 10.9	19 23 13.74	25 1 42.8	11.7	11.4	0.84
10	2 25.2	15 39 59.20	21 15 8.1	8.2	7.9	0.57	25	3 11.6	19 27 53.13	24 51 33.2	11.8	11.5	0.85
11	2 26.1	15 44 51.14	-21 34 10.8	8.3	8.0	0.57	26	3 12.3	19 32 30.45	-24 40 48.3	11.9	11.6	0.86
12	2 27.0	15 49 44.05	21 52 41.3	8.3	8.0	0.58	27	3 12.9	19 37 5.63	24 29 28.9	12.1	11.8	0.86
13	2 28.0	15 54 37.91	22 10 38.9	8.4	8.1	0.58	28	3 13.5	19 41 38.61	24 17 35.5	12.2	11.9	0.87
14	2 28.9	15 59 32.69	22 28 2.8	8.4	8.1	0.59	29	3 14.1	19 46 9.32	24 5 8.7	12.3	12.0	0.88
15	2 29.9	16 4 28.37	22 44 52.6	8.5	8.2	0.60	30	3 14.6	19 50 37.71	23 52 9.2	12.4	12.1	0.88
16	2 30.9	16 9 24.91	-23 1 7.5	8.5	8.2	0.60	Dec. 1	3 15.1	19 55 3.69	-23 38 38.0	12.5	12.2	0.89
17	2 31.9	16 14 22.28	23 16 47.2	8.6	8.3	0.61	2	3 15.5	19 59 27.20	23 24 35.6	12.7	12.4	0.90
18	2 32.9	16 19 20.44	23 31 51.0	8.7	8.4	0.61	3	3 15.9	20 3 48.18	23 10 2.9	12.8	12.5	0.91
19	2 34.0	16 24 19.35	23 46 18.4	8.7	8.4	0.61	4	3 16.3	20 8 6.57	22 55 0.6	13.0	12.7	0.92
20	2 35.0	16 29 18.96	24 0 8.6	8.8	8.5	0.62	5	3 16.6	20 12 22.30	22 39 29.6	13.1	12.8	0.92
21	2 36.1	16 34 19.23	-24 13 21.4	8.8	8.5	0.62	6	3 16.9	20 16 35.29	-22 23 30.9	13.3	12.9	0.93
22	2 37.2	16 39 20.10	24 25 56.2	8.9	8.6	0.63	7	3 17.1	20 20 45.48	22 7 5.1	13.5	13.1	0.94
23	2 38.2	16 44 21.53	24 37 52.6	9.0	8.7	0.63	8	3 17.3	20 24 52.82	21 50 13.2	13.6	13.2	0.95
24	2 39.3	16 49 23.44	24 49 10.2	9.0	8.7	0.64	9	3 17.4	20 28 57.22	21 32 56.2	13.8	13.4	0.96
25	2 40.4	16 54 25.80	24 59 48.4	9.1	8.8	0.64	10	3 17.4	20 32 58.62	21 15 14.9	13.9	13.5	0.97
26	2 41.5	16 59 28.54	-25 9 47.0	9.1	8.8	0.65	11	3 17.5	20 36 56.93	-20 57 10.3	14.1	13.7	0.98
27	2 42.6	17 4 31.59	25 19 5.5	9.2	8.9	0.65	12	3 17.5	20 40 52.09	20 38 43.4	14.3	13.9	0.99
28	2 43.7	17 9 34.90	25 27 43.7	9.2	9.0	0.66	13	3 17.4	20 44 44.02	20 19 55.2	14.5	14.0	1.00
29	2 44.8	17 14 38.41	25 35 41.2	9.3	9.0	0.67	14	3 17.3	20 48 32.65	20 0 46.6	14.7	14.2	1.01
30	2 45.9	17 19 42.06	25 42 57.9	9.3	9.1	0.68	15	3 17.1	20 52 17.92	19 41 18.7	14.9	14.4	1.02
31	2 47.1	17 24 45.80	-25 49 33.3	9.4	9.2	0.68	16	3 16.9	20 55 59.72	-19 21 32.5	15.1	14.6	1.03
Nov. 1	2 48.2	17 29 49.55	25 55 27.4	9.5	9.3	0.69	17	3 16.6	20 59 37.95	19 1 29.2	15.3	14.8	1.04
2	2 49.3	17 34 53.23	26 0 40.0	9.6	9.4	0.69	18	3 16.2	21 3 12.56	18 41 9.8	15.5	15.0	1.05
3	2 50.4	17 39 56.75	26 5 10.9	9.6	9.5	0.69	19	3 15.8	21 6 43.45	18 20 35.4	15.7	15.2	1.06
4	2 51.6	17 45 0.07	26 9 0.1	9.7	9.6	0.70	20	3 15.3	21 10 10.52	17 59 47.1	15.9	15.4	1.07
5	2 52.7	17 50 3.11	-26 12 7.4	9.8	9.6	0.70	21	3 14.7	21 13 33.67	-17 38 46.1	16.1	15.6	1.08
6	2 53.8	17 55 5.78	26 14 32.9	9.9	9.7	0.71	22	3 14.1	21 16 52.83	17 17 33.3	16.3	15.8	1.10
7	2 54.9	18 0 8.01	26 16 16.4	10.0	9.8	0.72	23	3 13.4	21 20 7.88	16 56 10.0	16.5	16.1	1.11
8	2 56.0	18 5 9.70	26 17 18.2	10.0	9.9	0.72	24	3 12.7	21 23 18.72	16 34 37.4	16.8	16.3	1.13
9	2 57.0	18 10 10.77	26 17 38.1	10.1	10.0	0.73	25	3 11.9	21 26 25.29	16 12 56.6	17.0	16.5	1.14
10	2 58.1	18 15 11.16	-26 17 16.3	10.2	10.0	0.74	26	3 11.0	21 29 27.46	-15 51 8.6	17.3	16.7	1.15
11	2 59.1	18 20 10.75	26 16 12.9	10.3	10.1	0.74	27	3 10.0	21 32 25.12	15 29 14.6	17.5	17.0	1.17
12	3 0.1	18 25 9.46	26 14 28.3	10.4	10.2	0.75	28	3 9.0	21 35 18.18	15 7 16.0	17.8	17.2	1.18
13	3 1.1	18 30 7.22	26 12 2.5	10.5	10.3	0.76	29	3 7.9	21 38 6.53	14 45 14.0	18.0	17.5	1.20
14	3 2.1	18 35 3.92	26 8 55.9	10.6	10.4	0.77	30	3 6.6	21 40 50.05	14 23 9.8	18.3	17.7	1.21
15	3 3.1	18 39 59.49	-26 5 8.7	10.7	10.5	0.77	31	3 5.3	21 43 28.62	-14 1 4.8	18.5	18.0	1.23
16	3 4.1	18 44 53.83	-26 0 41.3	10.8	10.6	0.78	32	3 3.9	21 46 2.10	-13 39 0.3	18.8	18.2	1.25

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Jan. 0	16 16.1	10 57 28.35	+10 9 28.3	9.4	5.3	0.36	Feb. 15	12 53.1	10 35 14.49	+13 40 41.5	12.9	7.4	0.50
1	16 12.7	10 58 1.22	10 8 15.1	9.5	5.4	0.36	16	12 47.7	10 33 46.86	13 49 23.0	12.9	7.4	0.51
2	16 9.3	10 58 31.72	10 7 17.0	9.5	5.4	0.36	17	12 42.3	10 32 18.06	13 58 2.8	12.9	7.4	0.51
3	16 5.8	10 58 59.81	10 6 34.1	9.6	5.5	0.37	18	12 36.9	10 30 48.24	14 6 39.8	13.0	7.5	0.51
4	16 2.3	10 59 25.44	10 6 6.5	9.7	5.5	0.37	19	12 31.4	10 29 17.60	14 15 12.9	13.0	7.5	0.51
5	15 58.8	10 59 48.56	+10 5 54.7	9.8	5.6	0.37	20	12 26.0	10 27 46.31	+14 23 40.6	13.0	7.5	0.51
6	15 55.2	11 0 9.13	10 5 58.8	9.9	5.6	0.38	21	12 20.5	10 26 14.55	14 32 2.1	13.1	7.5	0.51
7	15 51.6	11 0 27.11	10 6 19.2	9.9	5.7	0.38	22	12 15.1	10 24 42.48	14 40 16.1	13.1	7.5	0.51
8	15 47.9	11 0 42.46	10 6 56.1	10.0	5.7	0.39	23	12 9.6	10 23 10.30	14 48 21.8	13.1	7.5	0.51
9	15 44.2	11 0 55.14	10 7 49.6	10.1	5.8	0.39	24	12 4.1	10 21 38.19	14 56 18.4	13.1	7.5	0.51
10	15 40.4	11 1 5.11	+10 8 59.8	10.2	5.9	0.40	25	11 58.7	10 20 6.33	+15 4 4.8	13.1	7.5	0.51
11	15 36.6	11 1 12.31	10 10 26.9	10.3	5.9	0.40	26	11 53.3	10 18 34.92	15 11 40.2	13.0	7.5	0.51
12	15 32.7	11 1 16.70	10 12 11.2	10.4	5.9	0.40	27	11 47.8	10 17 4.09	15 19 3.8	13.0	7.4	0.51
13	15 28.8	11 1 18.25	10 14 12.8	10.5	6.0	0.41	28	11 42.4	10 15 34.01	15 26 14.8	13.0	7.4	0.51
14	15 24.9	11 1 16.92	10 16 31.7	10.6	6.0	0.41	Mar. 1	11 37.0	10 14 4.85	15 33 12.5	12.9	7.4	0.51
15	15 20.9	11 1 12.67	+10 19 8.1	10.7	6.1	0.41	2	11 31.6	10 12 36.79	+15 39 56.4	12.9	7.4	0.51
16	15 16.8	11 1 5.49	10 22 1.9	10.8	6.1	0.42	3	11 26.2	10 11 9.95	15 46 25.9	12.9	7.4	0.51
17	15 12.7	11 0 55.33	10 25 13.0	10.8	6.2	0.42	4	11 20.8	10 9 44.50	15 52 40.2	12.8	7.4	0.51
18	15 8.6	11 0 42.17	10 28 41.5	10.9	6.2	0.42	5	11 15.4	10 8 20.56	15 58 39.1	12.8	7.3	0.50
19	15 4.4	11 0 25.99	10 32 27.4	11.0	6.3	0.43	6	11 10.1	10 6 58.28	16 4 21.9	12.7	7.3	0.50
20	15 0.1	11 0 6.79	+10 36 30.5	11.1	6.4	0.43	7	11 4.8	10 5 37.78	+16 9 48.4	12.7	7.3	0.50
21	14 55.8	10 59 44.55	10 40 50.6	11.2	6.4	0.43	8	10 59.6	10 4 19.21	16 14 58.2	12.6	7.3	0.50
22	14 51.5	10 59 19.27	10 45 27.6	11.3	6.5	0.43	9	10 54.4	10 3 2.69	16 19 50.9	12.6	7.2	0.50
23	14 47.1	10 58 50.94	10 50 21.1	11.3	6.5	0.44	10	10 49.3	10 1 48.33	16 24 26.2	12.6	7.2	0.50
24	14 42.6	10 58 19.57	10 55 30.9	11.4	6.5	0.44	11	10 44.2	10 0 36.23	16 28 44.1	12.5	7.2	0.50
25	14 38.1	10 57 45.15	+11 0 56.7	11.5	6.6	0.44	12	10 39.1	9 59 26.50	+16 32 44.5	12.5	7.1	0.49
26	14 33.5	10 57 7.72	11 6 38.0	11.6	6.6	0.45	13	10 34.0	9 58 19.23	16 36 27.1	12.4	7.1	0.49
27	14 28.9	10 56 27.30	11 12 34.6	11.7	6.7	0.45	14	10 29.0	9 57 14.52	16 39 51.5	12.3	7.0	0.49
28	14 24.3	10 55 43.92	11 18 46.1	11.8	6.7	0.45	15	10 24.1	9 56 12.44	16 42 57.9	12.3	7.0	0.49
29	14 19.6	10 54 57.60	11 25 12.1	11.9	6.8	0.46	16	10 19.2	9 55 13.08	16 45 46.3	12.2	6.9	0.48
30	14 14.9	10 54 8.37	+11 31 52.0	12.0	6.8	0.46	17	10 14.3	9 54 16.49	+16 48 16.7	12.1	6.9	0.48
31	14 10.1	10 53 16.25	11 38 45.3	12.1	6.9	0.46	18	10 9.4	9 53 22.76	16 50 29.0	12.0	6.9	0.48
Feb. 1	14 5.2	10 52 21.31	11 45 51.2	12.1	6.9	0.47	19	10 4.7	9 52 31.94	16 52 23.4	12.0	6.8	0.48
2	14 0.3	10 51 23.59	11 53 9.5	12.2	7.0	0.47	20	9 59.9	9 51 44.08	16 53 59.8	11.9	6.8	0.48
3	13 55.4	10 50 23.14	12 0 39.2	12.3	7.0	0.47	21	9 55.3	9 50 59.21	16 55 18.6	11.8	6.7	0.47
4	13 50.4	10 49 20.02	+12 8 19.8	12.3	7.1	0.48	22	9 50.7	9 50 17.38	+16 56 19.8	11.7	6.7	0.47
5	13 45.4	10 48 14.31	12 16 10.5	12.4	7.1	0.48	23	9 46.1	9 49 38.59	16 57 3.6	11.6	6.7	0.47
6	13 40.3	10 47 6.07	12 24 10.5	12.4	7.1	0.48	24	9 41.6	9 49 2.89	16 57 30.2	11.6	6.6	0.46
7	13 35.2	10 45 55.39	12 32 19.0	12.5	7.2	0.49	25	9 37.1	9 48 30.27	16 57 39.8	11.5	6.6	0.46
8	13 30.1	10 44 42.35	12 40 35.2	12.6	7.2	0.49	26	9 32.7	9 48 0.73	16 57 32.8	11.4	6.5	0.46
9	13 24.9	10 43 27.06	+12 48 58.2	12.6	7.3	0.49	27	9 28.3	9 47 34.28	+16 57 9.6	11.3	6.5	0.45
10	13 19.7	10 42 9.62	12 57 27.1	12.7	7.3	0.50	28	9 24.0	9 47 10.90	16 56 30.2	11.3	6.4	0.45
11	13 14.4	10 40 50.15	13 6 0.7	12.7	7.3	0.50	29	9 19.7	9 46 50.56	16 55 35.1	11.2	6.4	0.45
12	13 9.1	10 39 28.76	13 14 38.0	12.8	7.3	0.50	30	9 15.5	9 46 33.25	16 54 24.4	11.2	6.3	0.44
13	13 3.8	10 38 5.59	13 23 17.9	12.8	7.4	0.50	31	9 11.3	9 46 18.95	16 52 58.5	11.1	6.3	0.44
14	12 58.5	10 36 40.78	+13 31 59.5	12.9	7.4	0.50	Apr. 1	9 7.2	9 46 7.64	+16 51 17.8	10.9	6.2	0.43
15	12 53.1	10 35 14.49	+13 40 41.5	12.9	7.4	0.50	2	9 3.1	9 45 59.28	+16 49 22.3	10.8	6.2	0.43

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Apr. 1	9 7.2	9 46 7.64	+16 51 17.8	10.9	6.2	0.43	May 16	6 42.5	10 18 27.78	+12 16 7.8	7.6	4.3	0.30
2	9 3.1	9 45 59.28	16 49 22.3	10.8	6.2	0.43	17	6 39.9	10 19 50.43	12 6 32.0	7.6	4.3	0.29
3	8 59.1	9 45 53.83	16 47 12.5	10.7	6.1	0.42	18	6 37.4	10 21 14.23	11 56 48.8	7.5	4.3	0.29
4	8 55.1	9 45 51.27	16 44 48.6	10.6	6.1	0.42	19	6 34.9	10 22 39.19	11 46 58.3	7.5	4.2	0.29
5	8 51.2	9 45 51.58	16 42 11.0	10.5	6.0	0.42	20	6 32.4	10 24 5.26	11 37 0.6	7.4	4.2	0.28
6	8 47.3	9 45 54.71	+16 39 19.7	10.4	5.9	0.41	21	6 29.9	10 25 32.42	+11 26 55.7	7.3	4.2	0.28
7	8 43.5	9 46 0.60	16 36 15.0	10.4	5.9	0.41	22	6 27.4	10 27 0.64	11 16 43.8	7.3	4.2	0.28
8	8 39.7	9 46 9.22	16 32 57.2	10.3	5.8	0.41	23	6 25.0	10 28 29.91	11 6 25.1	7.3	4.1	0.28
9	8 35.9	9 46 20.54	16 29 26.6	10.2	5.8	0.40	24	6 22.6	10 30 0.19	10 55 59.7	7.2	4.1	0.27
10	8 32.2	9 46 34.52	16 25 43.4	10.1	5.7	0.40	25	6 20.2	10 31 31.46	10 45 27.6	7.2	4.1	0.27
11	8 28.6	9 46 51.12	+16 21 47.7	10.0	5.7	0.39	26	6 17.8	10 33 3.71	+10 34 48.7	7.1	4.0	0.27
12	8 25.0	9 47 10.30	16 17 39.8	10.0	5.7	0.39	27	6 15.4	10 34 36.88	10 24 3.3	7.1	4.0	0.27
13	8 21.4	9 47 32.03	16 13 19.7	9.9	5.6	0.38	28	6 13.0	10 36 10.96	10 13 11.5	7.0	4.0	0.27
14	8 17.9	9 47 56.24	16 8 47.7	9.8	5.6	0.38	29	6 10.6	10 37 45.92	10 2 13.4	7.0	4.0	0.27
15	8 14.4	9 48 22.91	16 4 4.1	9.7	5.5	0.38	30	6 8.3	10 39 21.75	9 51 9.1	6.9	3.9	0.26
16	8 11.0	9 48 51.99	+15 59 9.0	9.6	5.5	0.37	31	6 6.0	10 40 58.42	+9 39 58.5	6.9	3.9	0.26
17	8 7.6	9 49 23.46	15 54 2.5	9.6	5.5	0.37	June 1	6 3.6	10 42 35.92	9 28 41.9	6.8	3.9	0.26
18	8 4.2	9 49 57.26	15 48 44.8	9.5	5.4	0.37	2	6 1.3	10 44 14.22	9 17 19.3	6.8	3.9	0.26
19	8 0.8	9 50 33.36	15 43 16.2	9.4	5.4	0.36	3	5 59.1	10 45 53.33	9 5 50.7	6.7	3.9	0.26
20	7 57.5	9 51 11.72	15 37 36.8	9.3	5.3	0.36	4	5 56.8	10 47 33.21	8 54 16.2	6.7	3.8	0.26
21	7 54.3	9 51 52.27	+15 31 46.8	9.2	5.3	0.36	5	5 54.6	10 49 13.86	+8 42 35.8	6.6	3.8	0.26
22	7 51.1	9 52 34.97	15 25 46.3	9.2	5.2	0.36	6	5 52.3	10 50 55.25	8 30 49.8	6.6	3.8	0.25
23	7 47.9	9 53 19.76	15 19 35.7	9.1	5.2	0.35	7	5 50.1	10 52 37.38	8 18 58.0	6.6	3.8	0.25
24	7 44.7	9 54 6.63	15 13 15.0	9.0	5.1	0.35	8	5 47.8	10 54 20.24	8 7 0.6	6.6	3.8	0.25
25	7 41.6	9 54 55.49	15 6 44.4	8.9	5.1	0.35	9	5 45.6	10 56 3.81	7 54 57.4	6.5	3.7	0.25
26	7 38.5	9 55 46.30	+15 0 4.1	8.8	5.0	0.34	10	5 43.4	10 57 48.07	+7 42 48.8	6.5	3.7	0.25
27	7 35.5	9 56 39.01	14 53 14.3	8.8	5.0	0.34	11	5 41.2	10 59 33.02	7 30 34.7	6.4	3.7	0.25
28	7 32.4	9 57 33.59	14 46 15.2	8.7	4.9	0.34	12	5 39.1	11 1 18.67	7 18 15.3	6.4	3.7	0.25
29	7 29.4	9 58 29.97	14 39 7.0	8.6	4.9	0.33	13	5 36.9	11 3 5.00	7 5 50.5	6.4	3.7	0.25
30	7 26.5	9 59 28.13	14 31 49.6	8.6	4.8	0.33	14	5 34.8	11 4 51.99	6 53 20.3	6.4	3.6	0.24
May 1	7 23.5	10 0 28.03	+14 24 23.3	8.5	4.8	0.33	15	5 32.6	11 6 39.65	+6 40 45.0	6.3	3.6	0.24
2	7 20.6	10 1 29.61	14 16 48.1	8.5	4.8	0.33	16	5 30.5	11 8 27.96	6 28 4.6	6.3	3.6	0.24
3	7 17.7	10 2 32.83	14 9 4.2	8.4	4.8	0.33	17	5 28.4	11 10 16.91	6 15 19.2	6.2	3.6	0.24
4	7 14.9	10 3 37.64	14 1 11.7	8.3	4.7	0.33	18	5 26.3	11 12 6.49	6 2 28.9	6.2	3.6	0.24
5	7 12.1	10 4 44.02	13 53 10.8	8.3	4.7	0.32	19	5 24.2	11 13 56.69	5 49 33.6	6.2	3.5	0.23
6	7 9.3	10 5 51.93	+13 45 1.5	8.2	4.7	0.32	20	5 22.1	11 15 47.49	+5 36 33.7	6.1	3.5	0.23
7	7 6.5	10 7 1.32	13 36 44.0	8.1	4.7	0.32	21	5 20.0	11 17 38.88	5 23 29.1	6.1	3.5	0.23
8	7 3.7	10 8 12.17	13 28 18.4	8.1	4.6	0.32	22	5 17.9	11 19 30.84	5 10 20.0	6.1	3.5	0.23
9	7 1.0	10 9 24.44	13 19 44.6	8.0	4.6	0.31	23	5 15.8	11 21 23.38	4 57 6.3	6.1	3.5	0.23
10	6 58.3	10 10 38.11	13 11 2.8	7.9	4.6	0.31	24	5 13.8	11 23 16.48	4 43 48.3	6.0	3.4	0.23
11	6 55.6	10 11 53.14	+13 2 13.1	7.9	4.5	0.31	25	5 11.8	11 25 10.14	+4 30 26.1	6.0	3.4	0.22
12	6 52.9	10 13 9.51	12 53 15.5	7.8	4.5	0.31	26	5 9.7	11 27 4.33	4 16 59.7	6.0	3.4	0.22
13	6 50.3	10 14 27.18	12 44 10.1	7.8	4.4	0.31	27	5 7.7	11 28 59.05	4 3 29.2	6.0	3.4	0.22
14	6 47.7	10 15 46.12	12 34 57.0	7.7	4.4	0.30	28	5 5.7	11 30 54.30	3 49 54.6	5.9	3.4	0.22
15	6 45.1	10 17 6.34	12 25 36.2	7.6	4.3	0.30	29	5 3.7	11 32 50.08	3 36 16.0	5.9	3.3	0.22
16	6 42.5	10 18 27.78	+12 16 7.8	7.6	4.3	0.30	30	5 1.7	11 34 46.39	+3 22 33.6	5.8	3.3	0.22
17	6 39.9	10 19 50.43	+12 6 32.0	7.6	4.3	0.29	July 1	4 59.7	11 36 43.21	+3 8 47.6	5.8	3.3	0.22

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Apr. 1	18 10.9	18 51 19.56	-22 43 31.8	1.7	18.3	1.40	May 17	15 13.3	18 54 38.90	-22 43 32.8	2.0	21.0	1.62
2	18 7.3	18 51 41.25	22 43 9.7	1.7	18.3	1.40	18	15 9.2	18 54 24.65	22 43 58.1	2.0	21.1	1.62
3	18 3.7	18 52 2.23	22 42 48.2	1.7	18.4	1.41	19	15 5.0	18 54 9.65	22 44 24.4	2.0	21.1	1.62
4	18 0.1	18 52 22.50	22 42 27.5	1.7	18.4	1.41	20	15 0.8	18 53 53.91	22 44 51.6	2.0	21.2	1.63
5	17 56.5	18 52 42.04	22 42 7.6	1.7	18.5	1.42	21	14 56.6	18 53 37.45	22 45 19.6	2.0	21.2	1.63
6	17 52.9	18 53 0.86	-22 41 48.5	1.7	18.5	1.42	22	14 52.4	18 53 20.28	-22 45 48.5	2.0	21.3	1.64
7	17 49.3	18 53 18.95	22 41 30.2	1.7	18.6	1.43	23	14 48.1	18 53 2.40	22 46 18.3	2.0	21.3	1.64
8	17 45.6	18 53 36.29	22 41 12.8	1.8	18.7	1.43	24	14 43.9	18 52 43.82	22 46 48.9	2.0	21.4	1.65
9	17 42.0	18 53 52.88	22 40 56.2	1.8	18.7	1.44	25	14 39.6	18 52 24.54	22 47 20.3	2.0	21.4	1.65
10	17 38.3	18 54 8.74	22 40 40.5	1.8	18.8	1.44	26	14 35.4	18 52 4.59	22 47 52.4	2.0	21.5	1.65
11	17 34.6	18 54 23.84	-22 40 25.8	1.8	18.8	1.45	27	14 31.1	18 51 43.97	-22 48 25.1	2.0	21.5	1.66
12	17 30.9	18 54 38.16	22 40 12.1	1.8	18.9	1.45	28	14 26.8	18 51 22.68	22 48 58.6	2.0	21.6	1.66
13	17 27.2	18 54 51.72	22 39 59.3	1.8	19.0	1.46	29	14 22.5	18 51 0.75	22 49 32.7	2.0	21.6	1.67
14	17 23.5	18 55 4.50	22 39 47.4	1.8	19.0	1.46	30	14 18.2	18 50 38.22	22 50 7.3	2.0	21.7	1.67
15	17 19.8	18 55 16.51	22 39 36.6	1.8	19.1	1.47	31	14 13.9	18 50 15.06	22 50 42.6	2.0	21.7	1.67
16	17 16.0	18 55 27.73	-22 39 26.8	1.8	19.1	1.47	June 1	14 9.6	18 49 51.29	-22 51 18.6	2.0	21.8	1.68
17	17 12.3	18 55 38.17	22 39 18.1	1.8	19.2	1.48	2	14 5.2	18 49 26.94	22 51 55.0	2.0	21.8	1.68
18	17 8.5	18 55 47.81	22 39 10.5	1.8	19.2	1.48	3	14 0.9	18 49 2.00	22 52 31.8	2.1	21.8	1.68
19	17 4.7	18 55 56.66	22 39 3.9	1.8	19.3	1.49	4	13 56.5	18 48 36.52	22 53 9.1	2.1	21.9	1.68
20	17 0.9	18 56 4.71	22 38 58.4	1.8	19.4	1.49	5	13 52.2	18 48 10.50	22 53 46.9	2.1	21.9	1.69
21	16 57.1	18 56 11.06	-22 38 54.0	1.8	19.4	1.50	6	13 47.8	18 47 43.95	-22 54 25.0	2.1	22.0	1.69
22	16 53.3	18 56 18.42	22 38 50.7	1.8	19.5	1.50	7	13 43.4	18 47 16.87	22 55 3.5	2.1	22.0	1.69
23	16 49.5	18 56 24.07	22 38 48.5	1.8	19.6	1.51	8	13 39.1	18 46 49.30	22 55 42.3	2.1	22.0	1.69
24	16 45.6	18 56 28.92	22 38 47.4	1.8	19.6	1.51	9	13 34.6	18 46 21.25	22 56 21.4	2.1	22.1	1.70
25	16 41.7	18 56 32.96	22 38 47.4	1.8	19.7	1.51	10	13 30.2	18 45 52.73	22 57 0.7	2.1	22.1	1.70
26	16 37.9	18 56 36.19	-22 38 48.6	1.8	19.8	1.52	11	13 25.8	18 45 23.76	-22 57 40.3	2.1	22.1	1.70
27	16 34.0	18 56 38.62	22 38 51.0	1.8	19.8	1.52	12	13 21.4	18 44 54.38	22 58 20.0	2.1	22.1	1.70
28	16 30.1	18 56 40.25	22 38 54.5	1.9	19.9	1.52	13	13 16.9	18 44 24.60	22 58 59.9	2.1	22.2	1.71
29	16 26.2	18 56 41.08	22 38 59.0	1.9	20.0	1.53	14	13 12.5	18 43 54.42	22 59 39.9	2.1	22.2	1.71
30	16 22.2	18 56 41.10	22 39 4.5	1.9	20.0	1.53	15	13 8.1	18 43 23.88	23 0 19.8	2.1	22.2	1.71
May 1	16 18.3	18 56 40.31	-22 39 11.3	1.9	20.1	1.54	16	13 3.6	18 42 53.01	-23 0 59.8	2.1	22.2	1.71
2	16 14.3	18 56 38.71	22 39 19.3	1.9	20.1	1.54	17	12 59.2	18 42 21.82	23 1 39.8	2.1	22.3	1.72
3	16 10.4	18 56 36.31	22 39 28.4	1.9	20.2	1.55	18	12 54.7	18 41 50.33	23 2 19.7	2.1	22.3	1.72
4	16 6.4	18 56 33.11	22 39 38.8	1.9	20.2	1.55	19	12 50.3	18 41 18.56	23 2 59.5	2.1	22.3	1.72
5	16 2.4	18 56 29.11	22 39 50.2	1.9	20.3	1.56	20	12 45.8	18 40 46.54	23 3 39.1	2.1	22.3	1.72
6	15 58.3	18 56 24.30	-22 40 2.7	1.9	20.3	1.56	21	12 41.3	18 40 14.28	-23 4 18.6	2.1	22.3	1.72
7	15 54.3	18 56 18.68	22 40 16.3	1.9	20.4	1.57	22	12 36.9	18 39 41.82	23 4 57.9	2.1	22.4	1.72
8	15 50.3	18 56 12.26	22 40 31.0	1.9	20.4	1.57	23	12 32.4	18 39 9.19	23 5 37.0	2.1	22.4	1.73
9	15 46.3	18 56 5.04	22 40 46.9	1.9	20.5	1.58	24	12 27.9	18 38 36.40	23 6 15.8	2.1	22.4	1.73
10	15 42.2	18 55 57.03	22 41 4.0	1.9	20.6	1.58	25	12 23.4	18 38 3.48	23 6 54.3	2.1	22.4	1.73
11	15 38.1	18 55 48.23	-22 41 22.1	1.9	20.6	1.59	26	12 19.0	18 37 30.44	-23 7 32.5	2.1	22.4	1.73
12	15 34.0	18 55 38.64	22 41 41.2	2.0	20.7	1.59	27	12 14.5	18 36 57.31	23 8 10.3	2.1	22.4	1.73
13	15 29.9	18 55 28.25	22 42 1.5	2.0	20.7	1.60	28	12 10.0	18 36 24.12	23 8 47.7	2.1	22.4	1.73
14	15 25.8	18 55 17.08	22 42 22.9	2.0	20.8	1.60	29	12 5.5	18 35 50.89	23 9 24.8	2.1	22.4	1.73
15	15 21.6	18 55 5.14	22 42 45.2	2.0	20.8	1.61	30	12 1.0	18 35 17.63	23 10 1.5	2.1	22.4	1.73
16	15 17.5	18 54 52.41	-22 43 8.5	2.0	20.9	1.61	July 1	11 56.6	18 34 44.38	-23 10 37.8	2.1	22.4	1.73
17	15 13.3	18 54 38.90	22 43 32.8	2.0	21.0	1.62	2	11 52.1	18 34 11.14	-23 11 13.7	2.1	22.4	1.73

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
July 1	11 56.6	18 34 44.38	23 10 37.8	2.1	22.4	1.73	Aug. 16	8 36.4	18 15 22.53	23 28 25.2	2.0	21.0	1.63
2	11 52.1	18 34 11.14	23 11 13.7	2.1	22.4	1.73	17	8 32.3	18 15 11.65	23 28 36.4	2.0	21.0	1.63
3	11 47.6	18 33 37.94	23 11 49.1	2.1	22.4	1.73	18	8 28.2	18 15 1.58	23 28 47.3	2.0	20.9	1.62
4	11 43.1	18 33 4.83	23 12 23.9	2.1	22.5	1.73	19	8 24.1	18 14 52.31	23 28 57.7	1.9	20.9	1.62
5	11 38.6	18 32 31.81	23 12 58.2	2.1	22.5	1.73	20	8 20.0	18 14 43.85	23 29 7.7	1.9	20.8	1.61
6	11 34.2	18 31 58.89	23 13 32.0	2.1	22.4	1.73	21	8 16.0	18 14 36.19	23 29 17.3	1.9	20.8	1.61
7	11 29.7	18 31 26.10	23 14 5.4	2.1	22.4	1.73	22	8 11.9	18 14 29.35	23 29 26.6	1.9	20.7	1.61
8	11 25.2	18 30 53.48	23 14 38.2	2.1	22.4	1.73	23	8 7.9	18 14 23.32	23 29 35.6	1.9	20.6	1.60
9	11 20.7	18 30 21.05	23 15 10.4	2.1	22.4	1.73	24	8 3.9	18 14 18.11	23 29 44.3	1.9	20.6	1.60
10	11 16.3	18 29 48.82	23 15 42.0	2.1	22.4	1.73	25	7 59.9	18 14 13.71	23 29 52.6	1.9	20.5	1.59
11	11 11.8	18 29 16.81	23 16 13.1	2.1	22.4	1.73	26	7 55.9	18 14 10.14	23 30 0.6	1.9	20.5	1.59
12	11 7.3	18 28 45.05	23 16 43.6	2.1	22.4	1.73	27	7 51.9	18 14 7.39	23 30 8.3	1.9	20.4	1.58
13	11 2.9	18 28 13.58	23 17 13.5	2.1	22.4	1.73	28	7 47.9	18 14 5.46	23 30 15.6	1.9	20.3	1.58
14	10 58.4	18 27 42.40	23 17 42.8	2.1	22.4	1.73	29	7 44.0	18 14 4.35	23 30 22.7	1.9	20.3	1.57
15	10 54.0	18 27 11.53	23 18 11.4	2.1	22.3	1.72	30	7 40.0	18 14 4.06	23 30 29.5	1.9	20.2	1.57
16	10 49.5	18 26 41.01	23 18 39.4	2.1	22.3	1.72	31	7 36.1	18 14 4.59	23 30 35.9	1.9	20.2	1.56
17	10 45.1	18 26 10.86	23 19 6.9	2.1	22.3	1.72	Sept. 1	7 32.2	18 14 5.94	23 30 41.9	1.9	20.1	1.56
18	10 40.7	18 25 41.10	23 19 33.7	2.1	22.3	1.72	2	7 28.3	18 14 8.11	23 30 47.6	1.9	20.1	1.55
19	10 36.3	18 25 11.76	23 19 59.8	2.1	22.2	1.71	3	7 24.4	18 14 11.10	23 30 53.0	1.9	20.0	1.55
20	10 31.8	18 24 42.85	23 20 25.4	2.1	22.2	1.71	4	7 20.6	18 14 14.92	23 30 58.1	1.9	19.9	1.54
21	10 27.4	18 24 14.38	23 20 50.3	2.1	22.2	1.71	5	7 16.7	18 14 19.56	23 31 2.8	1.9	19.9	1.54
22	10 23.0	18 23 46.37	23 21 14.6	2.1	22.1	1.71	6	7 12.9	18 14 25.02	23 31 7.1	1.8	19.8	1.53
23	10 18.7	18 23 18.84	23 21 38.3	2.1	22.1	1.71	7	7 9.0	18 14 31.30	23 31 11.1	1.8	19.7	1.53
24	10 14.3	18 22 51.82	23 22 1.3	2.1	22.0	1.70	8	7 5.2	18 14 38.39	23 31 14.9	1.8	19.7	1.53
25	10 9.9	18 22 25.33	23 22 23.8	2.1	22.0	1.70	9	7 1.4	18 14 46.29	23 31 18.3	1.8	19.6	1.52
26	10 5.5	18 21 59.38	23 22 45.8	2.1	22.0	1.70	10	6 57.6	18 14 55.02	23 31 21.2	1.8	19.6	1.52
27	10 1.2	18 21 33.98	23 23 7.1	2.1	21.9	1.69	11	6 53.9	18 15 4.55	23 31 23.8	1.8	19.5	1.51
28	9 56.8	18 21 9.15	23 23 27.8	2.0	21.9	1.69	12	6 50.1	18 15 14.89	23 31 26.1	1.8	19.4	1.51
29	9 52.5	18 20 44.90	23 23 48.0	2.0	21.9	1.69	13	6 46.3	18 15 26.02	23 31 28.0	1.8	19.4	1.50
30	9 48.2	18 20 21.24	23 24 7.6	2.0	21.8	1.69	14	6 42.6	18 15 37.97	23 31 29.4	1.8	19.3	1.50
31	9 43.9	18 19 58.20	23 24 26.6	2.0	21.8	1.68	15	6 38.9	18 15 50.71	23 31 30.5	1.8	19.3	1.49
Aug. 1	9 39.6	18 19 35.79	23 24 45.2	2.0	21.7	1.68	16	6 35.2	18 16 4.24	23 31 31.1	1.8	19.2	1.49
2	9 35.3	18 19 14.00	23 25 3.2	2.0	21.7	1.68	17	6 31.5	18 16 18.56	23 31 31.4	1.8	19.1	1.48
3	9 31.0	18 18 52.86	23 25 20.8	2.0	21.7	1.68	18	6 27.8	18 16 33.66	23 31 31.3	1.8	19.1	1.48
4	9 26.7	18 18 32.39	23 25 37.8	2.0	21.6	1.67	19	6 24.1	18 16 49.55	23 31 30.6	1.8	19.0	1.47
5	9 22.4	18 18 12.59	23 25 54.2	2.0	21.6	1.67	20	6 20.5	18 17 6.21	23 31 29.5	1.8	19.0	1.47
6	9 18.2	18 17 53.48	23 26 10.2	2.0	21.5	1.67	21	6 16.9	18 17 23.64	23 31 28.0	1.8	18.9	1.46
7	9 14.0	18 17 35.07	23 26 25.8	2.0	21.5	1.66	22	6 13.2	18 17 41.83	23 31 25.9	1.8	18.9	1.46
8	9 9.7	18 17 17.36	23 26 40.8	2.0	21.4	1.66	23	6 9.6	18 18 0.77	23 31 23.4	1.8	18.8	1.46
9	9 5.5	18 17 0.37	23 26 55.4	2.0	21.4	1.66	24	6 6.0	18 18 20.45	23 31 20.4	1.7	18.8	1.45
10	9 1.3	18 16 44.12	23 27 9.6	2.0	21.3	1.65	25	6 2.4	18 18 40.88	23 31 16.8	1.7	18.7	1.45
11	8 57.1	18 16 28.61	23 27 23.3	2.0	21.3	1.65	26	5 58.8	18 19 2.04	23 31 12.8	1.7	18.6	1.45
12	8 53.0	18 16 13.85	23 27 36.5	2.0	21.2	1.64	27	5 55.2	18 19 23.91	23 31 8.2	1.7	18.6	1.44
13	8 48.8	18 15 59.86	23 27 49.3	2.0	21.2	1.64	28	5 51.7	18 19 46.52	23 31 3.0	1.7	18.5	1.44
14	8 44.6	18 15 46.64	23 28 1.7	2.0	21.1	1.64	29	5 48.2	18 20 9.84	23 30 57.1	1.7	18.5	1.44
15	8 40.5	18 15 34.20	23 28 13.6	2.0	21.1	1.63	30	5 44.6	18 20 33.86	23 30 50.8	1.7	18.4	1.43
16	8 36.4	18 15 22.53	23 28 25.2	2.0	21.0	1.63	Oct. 1	5 41.1	18 20 58.59	23 30 43.8	1.7	18.4	1.43

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° "	"	"	s		h m	h m s	° "	"	"	s
Apr. 1	18 28.4	19 8 52.22	21 57 41.1	0.9	7.7	0.60	May 16	15 31.9	19 9 19.07	21 58 13.5	0.9	8.3	0.64
2	18 24.6	19 9 1.84	21 57 26.6	0.9	7.7	0.60	17	15 27.8	19 9 10.43	21 58 30.2	0.9	8.3	0.64
3	18 20.8	19 9 11.06	21 57 12.6	0.9	7.7	0.60	18	15 23.7	19 9 1.42	21 58 47.5	0.9	8.4	0.64
4	18 17.0	19 9 19.88	21 56 59.3	0.9	7.8	0.60	19	15 19.7	19 8 52.05	21 59 5.5	0.9	8.4	0.64
5	18 13.2	19 9 28.30	21 56 46.7	0.9	7.8	0.60	20	15 15.6	19 8 42.31	21 59 24.1	0.9	8.4	0.64
6	18 9.4	19 9 36.32	21 56 34.8	0.9	7.8	0.60	21	15 11.5	19 8 32.21	21 59 43.3	0.9	8.4	0.64
7	18 5.6	19 9 43.93	21 56 23.5	0.9	7.8	0.60	22	15 7.4	19 8 21.77	22 0 3.1	0.9	8.4	0.65
8	18 1.8	19 9 51.13	21 56 12.8	0.9	7.8	0.60	23	15 3.3	19 8 10.99	22 0 23.4	0.9	8.4	0.65
9	17 58.0	19 9 57.92	21 56 2.8	0.9	7.8	0.60	24	14 59.2	19 7 59.88	22 0 44.3	0.9	8.4	0.65
10	17 54.2	19 10 4.32	21 55 53.5	0.9	7.8	0.60	25	14 55.0	19 7 48.43	22 1 5.7	0.9	8.4	0.65
11	17 50.4	19 10 10.30	21 55 44.9	0.9	7.8	0.60	26	14 50.9	19 7 36.66	22 1 27.6	1.0	8.4	0.65
12	17 46.5	19 10 15.86	21 55 36.9	0.9	7.9	0.61	27	14 46.8	19 7 24.57	22 1 50.0	1.0	8.4	0.65
13	17 42.6	19 10 21.02	21 55 29.6	0.9	7.9	0.61	28	14 42.6	19 7 12.15	22 2 13.0	1.0	8.4	0.65
14	17 38.8	19 10 25.76	21 55 23.0	0.9	7.9	0.61	29	14 38.5	19 6 59.43	22 2 36.5	1.0	8.5	0.65
15	17 35.0	19 10 30.08	21 55 17.2	0.9	7.9	0.61	30	14 34.3	19 6 46.41	22 3 0.4	1.0	8.5	0.65
16	17 31.1	19 10 33.08	21 55 12.0	0.9	7.9	0.61	31	14 30.2	19 6 33.09	22 3 24.7	1.0	8.5	0.65
17	17 27.2	19 10 37.46	21 55 7.6	0.9	7.9	0.61	June 1	14 26.0	19 6 19.47	22 3 49.5	1.0	8.5	0.65
18	17 23.3	19 10 40.52	21 55 4.0	0.9	7.9	0.61	2	14 21.8	19 6 5.57	22 4 14.7	1.0	8.5	0.65
19	17 19.4	19 10 43.16	21 55 1.0	0.9	8.0	0.62	3	14 17.7	19 5 51.40	22 4 40.4	1.0	8.5	0.65
20	17 15.5	19 10 45.38	21 54 58.8	0.9	8.0	0.62	4	14 13.5	19 5 36.95	22 5 6.5	1.0	8.5	0.65
21	17 11.6	19 10 47.17	21 54 57.4	0.9	8.0	0.62	5	14 9.3	19 5 22.24	22 5 33.0	1.0	8.5	0.65
22	17 7.7	19 10 48.55	21 54 56.6	0.9	8.0	0.62	6	14 5.2	19 5 7.27	22 5 59.8	1.0	8.5	0.65
23	17 3.8	19 10 49.51	21 54 56.6	0.9	8.0	0.62	7	14 1.0	19 4 52.04	22 6 27.1	1.0	8.5	0.66
24	16 59.9	19 10 50.05	21 54 57.3	0.9	8.0	0.62	8	13 56.8	19 4 36.57	22 6 54.6	1.0	8.5	0.66
25	16 56.0	19 10 50.18	21 54 58.8	0.9	8.1	0.62	9	13 52.6	19 4 20.85	22 7 22.5	1.0	8.5	0.66
26	16 52.0	19 10 49.89	21 55 0.9	0.9	8.1	0.62	10	13 48.4	19 4 4.90	22 7 50.7	1.0	8.6	0.66
27	16 48.1	19 10 49.19	21 55 3.8	0.9	8.1	0.62	11	13 44.2	19 3 48.72	22 8 19.3	1.0	8.6	0.66
28	16 44.1	19 10 48.08	21 55 7.4	0.9	8.1	0.63	12	13 40.0	19 3 32.33	22 8 48.1	1.0	8.6	0.66
29	16 40.2	19 10 46.55	21 55 11.8	0.9	8.1	0.63	13	13 35.8	19 3 15.73	22 9 17.1	1.0	8.6	0.66
30	16 36.2	19 10 44.61	21 55 16.8	0.9	8.1	0.63	14	13 31.6	19 2 58.92	22 9 46.4	1.0	8.6	0.66
May 1	16 32.2	19 10 42.27	21 55 22.6	0.9	8.1	0.63	15	13 27.4	19 2 41.93	22 10 16.0	1.0	8.6	0.66
2	16 28.3	19 10 39.52	21 55 29.1	0.9	8.1	0.63	16	13 23.1	19 2 24.75	22 10 45.8	1.0	8.6	0.66
3	16 24.3	19 10 36.36	21 55 36.3	0.9	8.2	0.63	17	13 18.9	19 2 7.39	22 11 15.8	1.0	8.6	0.66
4	16 20.3	19 10 32.78	21 55 44.2	0.9	8.2	0.63	18	13 14.7	19 1 49.87	22 11 46.0	1.0	8.6	0.66
5	16 16.3	19 10 28.80	21 55 52.9	0.9	8.2	0.63	19	13 10.5	19 1 32.20	22 12 16.3	1.0	8.6	0.66
6	16 12.3	19 10 24.42	21 56 2.2	0.9	8.2	0.63	20	13 6.2	19 1 14.38	22 12 46.8	1.0	8.6	0.66
7	16 8.3	19 10 19.65	21 56 12.2	0.9	8.2	0.63	21	13 2.0	19 0 56.41	22 13 17.4	1.0	8.6	0.66
8	16 4.3	19 10 14.48	21 56 22.9	0.9	8.2	0.63	22	12 57.8	19 0 38.32	22 13 48.2	1.0	8.6	0.66
9	16 0.2	19 10 8.91	21 56 34.4	0.9	8.2	0.63	23	12 53.5	19 0 20.12	22 14 19.0	1.0	8.6	0.67
10	15 56.2	19 10 2.96	21 56 46.6	0.9	8.2	0.63	24	12 49.3	19 0 1.81	22 14 49.8	1.0	8.6	0.67
11	15 52.2	19 9 56.61	21 56 59.4	0.9	8.3	0.63	25	12 45.0	18 59 43.39	22 15 20.8	1.0	8.6	0.67
12	15 48.1	19 9 49.87	21 57 12.9	0.9	8.3	0.64	26	12 40.8	18 59 24.87	22 15 51.9	1.0	8.6	0.67
13	15 44.1	19 9 42.74	21 57 27.1	0.9	8.3	0.64	27	12 36.6	18 59 6.28	22 16 23.0	1.0	8.6	0.67
14	15 40.0	19 9 35.23	21 57 42.0	0.9	8.3	0.64	28	12 32.3	18 58 47.62	22 16 54.1	1.0	8.6	0.67
15	15 36.0	19 9 27.34	21 57 57.5	0.9	8.3	0.64	29	12 28.1	18 58 28.89	22 17 25.2	1.0	8.6	0.67
16	15 31.9	19 9 19.07	21 58 13.5	0.9	8.3	0.64	30	12 23.8	18 58 10.11	22 17 56.3	1.0	8.6	0.67
17	15 27.8	19 9 10.43	21 58 30.2	0.9	8.3	0.64	July 1	12 19.6	18 57 51.29	22 18 27.4	1.0	8.6	0.67

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
July 1	12 19.6	18 57 51.29	-22 18 27.4	1.0	8.6	0.67	Aug. 15	9 10.3	18 45 24.54	-22 38 23.0	1.0	8.4	0.65
2	12 15.4	18 57 32.43	22 18 58.5	1.0	8.6	0.67	16	9 6.2	18 45 13.21	22 38 42.0	1.0	8.4	0.65
3	12 11.1	18 57 13.53	22 19 29.5	1.0	8.6	0.67	17	9 2.0	18 45 2.22	22 39 0.7	1.0	8.4	0.65
4	12 6.9	18 56 54.61	22 20 0.4	1.0	8.6	0.67	18	8 57.9	18 44 51.58	22 39 19.0	1.0	8.4	0.65
5	12 2.6	18 56 35.69	22 20 31.3	1.0	8.6	0.67	19	8 53.8	18 44 41.29	22 39 36.8	1.0	8.4	0.65
6	11 58.4	18 56 16.76	-22 21 2.1	1.0	8.7	0.67	20	8 49.7	18 44 31.35	-22 39 54.2	1.0	8.4	0.65
7	11 54.1	18 55 57.84	22 21 32.9	1.0	8.7	0.67	21	8 45.6	18 44 21.77	22 40 11.2	1.0	8.4	0.65
8	11 49.9	18 55 38.94	22 22 3.6	1.0	8.6	0.67	22	8 41.6	18 44 12.56	22 40 27.8	0.9	8.4	0.65
9	11 45.6	18 55 20.07	22 22 34.1	1.0	8.6	0.67	23	8 37.5	18 44 3.72	22 40 44.0	0.9	8.4	0.65
10	11 41.4	18 55 1.24	22 23 4.4	1.0	8.6	0.67	24	8 33.4	18 43 55.25	22 40 59.8	0.9	8.3	0.65
11	11 37.1	18 54 42.44	-22 23 34.7	1.0	8.6	0.67	25	8 29.3	18 43 47.16	-22 41 15.2	0.9	8.3	0.64
12	11 32.9	18 54 23.70	22 24 4.8	1.0	8.6	0.67	26	8 25.3	18 43 39.45	22 41 30.3	0.9	8.3	0.64
13	11 28.6	18 54 5.03	22 24 34.7	1.0	8.6	0.67	27	8 21.2	18 43 32.12	22 41 44.9	0.9	8.3	0.64
14	11 24.4	18 53 46.44	22 25 4.4	1.0	8.6	0.67	28	8 17.2	18 43 25.18	22 41 59.0	0.9	8.3	0.64
15	11 20.2	18 53 27.93	22 25 33.8	1.0	8.6	0.67	29	8 13.1	18 43 18.63	22 42 12.8	0.9	8.3	0.64
16	11 15.9	18 53 9.51	-22 26 3.1	1.0	8.6	0.67	30	8 9.1	18 43 12.47	-22 42 26.1	0.9	8.3	0.64
17	11 11.7	18 52 51.21	22 26 32.2	1.0	8.6	0.67	31	8 5.1	18 43 6.71	22 42 39.1	0.9	8.3	0.64
18	11 7.5	18 52 33.01	22 27 1.0	1.0	8.6	0.67	Sept. 1	8 1.1	18 43 1.33	22 42 51.6	0.9	8.2	0.64
19	11 3.2	18 52 14.94	22 27 29.6	1.0	8.6	0.67	2	7 57.0	18 42 56.36	22 43 3.6	0.9	8.2	0.63
20	10 59.0	18 51 57.00	22 27 57.9	1.0	8.6	0.67	3	7 53.0	18 42 51.79	22 43 15.2	0.9	8.2	0.63
21	10 54.8	18 51 39.21	-22 28 25.9	1.0	8.6	0.67	4	7 49.0	18 42 47.62	-22 43 26.4	0.9	8.2	0.63
22	10 50.5	18 51 21.58	22 28 53.7	1.0	8.6	0.67	5	7 45.0	18 42 43.86	22 43 37.2	0.9	8.2	0.63
23	10 46.4	18 51 4.10	22 29 21.2	1.0	8.6	0.67	6	7 41.1	18 42 40.52	22 43 47.5	0.9	8.2	0.63
24	10 42.1	18 50 46.79	22 29 48.4	1.0	8.6	0.66	7	7 37.1	18 42 37.59	22 43 57.4	0.9	8.2	0.63
25	10 37.9	18 50 29.67	22 30 15.3	1.0	8.6	0.66	8	7 33.1	18 42 35.07	22 44 6.9	0.9	8.2	0.63
26	10 33.7	18 50 12.74	-22 30 42.0	1.0	8.6	0.66	9	7 29.1	18 42 32.97	-22 44 16.0	0.9	8.2	0.63
27	10 29.5	18 49 55.99	22 31 8.3	1.0	8.6	0.66	10	7 25.2	18 42 31.29	22 44 24.6	0.9	8.2	0.63
28	10 25.3	18 49 39.43	22 31 34.3	1.0	8.6	0.66	11	7 21.2	18 42 30.03	22 44 32.8	0.9	8.1	0.63
29	10 21.1	18 49 23.09	22 32 0.0	1.0	8.6	0.66	12	7 17.3	18 42 29.20	22 44 40.5	0.9	8.1	0.62
30	10 16.9	18 49 6.98	22 32 25.4	1.0	8.6	0.66	13	7 13.3	18 42 28.78	22 44 47.8	0.9	8.1	0.62
31	10 12.7	18 48 51.09	-22 32 50.4	1.0	8.6	0.66	14	7 9.4	18 42 28.79	-22 44 54.6	0.9	8.1	0.62
Aug. 1	10 8.5	18 48 35.42	22 33 15.0	1.0	8.6	0.66	15	7 5.5	18 42 29.23	22 45 1.0	0.9	8.1	0.62
2	10 4.3	18 48 19.99	22 33 39.4	1.0	8.5	0.66	16	7 1.5	18 42 30.09	22 45 7.0	0.9	8.1	0.62
3	10 0.1	18 48 4.82	22 34 3.4	1.0	8.5	0.66	17	6 57.6	18 42 31.38	22 45 12.5	0.9	8.0	0.62
4	9 55.9	18 47 49.90	22 34 27.1	1.0	8.5	0.66	18	6 53.7	18 42 33.09	22 45 17.5	0.9	8.0	0.62
5	9 51.7	18 47 35.24	-22 34 50.4	1.0	8.5	0.66	19	6 49.8	18 42 35.22	-22 45 22.1	0.9	8.0	0.62
6	9 47.6	18 47 20.85	22 35 13.3	1.0	8.5	0.66	20	6 46.0	18 42 37.78	22 45 26.3	0.9	8.0	0.62
7	9 43.5	18 47 6.73	22 35 35.9	1.0	8.5	0.66	21	6 42.1	18 42 40.77	22 45 30.0	0.9	8.0	0.62
8	9 39.3	18 46 52.89	22 35 58.2	1.0	8.5	0.66	22	6 38.2	18 42 44.19	22 45 33.2	0.9	8.0	0.62
9	9 35.1	18 46 39.33	22 36 20.1	1.0	8.5	0.65	23	6 34.3	18 42 48.02	22 45 36.1	0.9	8.0	0.61
10	9 31.0	18 46 26.08	-22 36 41.6	1.0	8.5	0.65	24	6 30.5	18 42 52.27	-22 45 38.6	0.9	8.0	0.61
11	9 26.8	18 46 13.14	22 37 2.7	1.0	8.5	0.65	25	6 26.6	18 42 56.94	22 45 40.6	0.9	8.0	0.61
12	9 22.7	18 46 0.50	22 37 23.3	1.0	8.4	0.65	26	6 22.8	18 43 2.03	22 45 42.0	0.9	8.0	0.61
13	9 18.5	18 45 48.18	22 37 43.6	1.0	8.4	0.65	27	6 18.9	18 43 7.54	22 45 42.9	0.9	8.0	0.61
14	9 14.4	18 45 36.20	22 38 3.5	1.0	8.4	0.65	28	6 15.1	18 43 13.46	22 45 43.4	0.9	7.9	0.61
15	9 10.3	18 45 24.54	-22 38 23.0	1.0	8.4	0.65	29	6 11.3	18 43 19.80	-22 45 43.5	0.9	7.9	0.61
16	9 6.2	18 45 13.21	22 38 42.0	1.0	8.4	0.65	30	6 7.4	18 43 26.55	-22 45 43.1	0.9	7.9	0.61

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Semi- Par. diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Semi- Par. diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	" s		h m	h m s	° ' "	"	" s
Mar. 10	17 49.2	17 2 49.95	22 48 15.2	0.5	1.8 0.13	Apr. 24	14 50.4	17 1 0.86	22 46 11.1	0.5	1.8 0.13
11	17 45.3	17 2 52.36	22 48 19.1	0.5	1.8 0.13	25	14 46.4	17 0 53.87	22 46 1.9	0.5	1.8 0.13
12	17 41.4	17 2 54.55	22 48 22.7	0.5	1.8 0.13	26	14 42.3	17 0 46.71	22 45 52.4	0.5	1.8 0.13
13	17 37.5	17 2 56.50	22 48 26.0	0.5	1.8 0.13	27	14 38.3	17 0 39.39	22 45 42.6	0.5	1.8 0.13
14	17 33.6	17 2 58.23	22 48 29.0	0.5	1.8 0.13	28	14 34.2	17 0 31.93	22 45 32.6	0.5	1.8 0.13
15	17 29.7	17 2 59.72	22 48 31.6	0.5	1.8 0.13	29	14 30.2	17 0 24.31	22 45 22.4	0.5	1.8 0.13
16	17 25.8	17 3 0.99	22 48 33.9	0.5	1.8 0.13	30	14 26.1	17 0 16.54	22 45 11.9	0.5	1.8 0.13
17	17 21.9	17 3 2.03	22 48 35.9	0.5	1.8 0.13	May 1	14 22.1	17 0 8.63	22 45 1.2	0.5	1.8 0.13
18	17 18.0	17 3 2.84	22 48 37.6	0.5	1.8 0.13	2	14 18.0	17 0 0.58	22 44 50.3	0.5	1.8 0.13
19	17 14.0	17 3 3.42	22 48 39.0	0.5	1.8 0.13	3	14 13.9	16 59 52.39	22 44 39.1	0.5	1.8 0.13
20	17 10.1	17 3 3.78	22 48 40.1	0.5	1.8 0.13	4	14 9.8	16 59 44.05	22 44 27.7	0.5	1.8 0.13
21	17 6.2	17 3 3.90	22 48 40.9	0.5	1.8 0.13	5	14 5.8	16 59 35.59	22 44 16.1	0.5	1.8 0.13
22	17 2.2	17 3 3.79	22 48 41.3	0.5	1.8 0.13	6	14 1.7	16 59 27.00	22 44 4.3	0.5	1.8 0.13
23	16 58.3	17 3 3.46	22 48 41.4	0.5	1.8 0.13	7	13 57.6	16 59 18.28	22 43 52.3	0.5	1.8 0.13
24	16 54.4	17 3 2.91	22 48 41.2	0.5	1.8 0.13	8	13 53.5	16 59 9.44	22 43 40.1	0.5	1.8 0.13
25	16 50.4	17 3 2.13	22 48 40.8	0.5	1.8 0.13	9	13 49.5	16 59 0.48	22 43 27.7	0.5	1.8 0.13
26	16 46.5	17 3 1.12	22 48 40.0	0.5	1.8 0.13	10	13 45.4	16 58 51.41	22 43 15.1	0.5	1.8 0.13
27	16 42.5	17 2 59.89	22 48 39.0	0.5	1.8 0.13	11	13 41.3	16 58 42.23	22 43 2.3	0.5	1.8 0.13
28	16 38.6	17 2 58.43	22 48 37.6	0.5	1.8 0.13	12	13 37.2	16 58 32.93	22 42 49.3	0.5	1.8 0.13
29	16 34.6	17 2 56.76	22 48 35.9	0.5	1.8 0.13	13	13 33.1	16 58 23.54	22 42 36.0	0.5	1.8 0.13
30	16 30.6	17 2 54.87	22 48 34.0	0.5	1.8 0.13	14	13 29.0	16 58 14.05	22 42 22.6	0.5	1.8 0.13
Apr. 31	16 26.7	17 2 52.76	22 48 31.7	0.5	1.8 0.13	15	13 24.9	16 58 4.46	22 42 9.1	0.5	1.8 0.13
1	16 22.7	17 2 50.44	22 48 29.1	0.5	1.8 0.13	16	13 20.8	16 57 54.76	22 41 55.4	0.5	1.8 0.13
2	16 18.7	17 2 47.90	22 48 26.3	0.5	1.8 0.13	17	13 16.7	16 57 44.99	22 41 41.5	0.5	1.8 0.13
3	16 14.8	17 2 45.14	22 48 23.1	0.5	1.8 0.13	18	13 12.6	16 57 35.14	22 41 27.5	0.5	1.8 0.13
4	16 10.8	17 2 42.17	22 48 19.7	0.5	1.8 0.13	19	13 8.5	16 57 25.21	22 41 13.3	0.5	1.8 0.13
5	16 6.8	17 2 38.99	22 48 15.9	0.5	1.8 0.13	20	13 4.4	16 57 15.19	22 40 59.0	0.5	1.8 0.13
6	16 2.8	17 2 35.60	22 48 11.9	0.5	1.8 0.13	21	13 0.3	16 57 5.11	22 40 44.5	0.5	1.8 0.13
7	15 58.8	17 2 32.01	22 48 7.5	0.5	1.8 0.13	22	12 56.2	16 56 54.96	22 40 29.9	0.5	1.8 0.13
8	15 54.8	17 2 28.21	22 48 2.9	0.5	1.8 0.13	23	12 52.1	16 56 44.76	22 40 15.2	0.5	1.8 0.13
9	15 50.8	17 2 24.21	22 47 58.0	0.5	1.8 0.13	24	12 48.0	16 56 34.50	22 40 0.3	0.5	1.8 0.13
10	15 46.8	17 2 20.00	22 47 52.8	0.5	1.8 0.13	25	12 43.9	16 56 24.19	22 39 45.2	0.5	1.8 0.13
11	15 42.8	17 2 15.59	22 47 47.3	0.5	1.8 0.13	26	12 39.8	16 56 13.83	22 39 30.0	0.5	1.8 0.13
12	15 38.8	17 2 10.98	22 47 41.6	0.5	1.8 0.13	27	12 35.7	16 56 3.43	22 39 14.7	0.5	1.8 0.13
13	15 34.8	17 2 6.17	22 47 35.5	0.5	1.8 0.13	28	12 31.6	16 55 52.99	22 38 59.3	0.5	1.8 0.13
14	15 30.8	17 2 1.16	22 47 29.2	0.5	1.8 0.13	29	12 27.5	16 55 42.51	22 38 43.8	0.5	1.8 0.13
15	15 26.8	17 1 55.96	22 47 22.6	0.5	1.8 0.13	30	12 23.4	16 55 32.01	22 38 28.3	0.5	1.8 0.13
16	15 22.7	17 1 50.57	22 47 15.8	0.5	1.8 0.13	31	12 19.3	16 55 21.48	22 38 12.7	0.5	1.8 0.13
17	15 18.7	17 1 44.99	22 47 8.6	0.5	1.8 0.13	June 1	12 15.2	16 55 10.93	22 37 57.0	0.5	1.8 0.13
18	15 14.7	17 1 39.22	22 47 1.1	0.5	1.8 0.13	2	12 11.1	16 55 0.36	22 37 41.2	0.5	1.8 0.13
19	15 10.6	17 1 33.27	22 46 53.4	0.5	1.8 0.13	3	12 7.0	16 54 49.78	22 37 25.4	0.5	1.8 0.13
20	15 6.6	17 1 27.14	22 46 45.4	0.5	1.8 0.13	4	12 2.9	16 54 39.19	22 37 9.4	0.5	1.8 0.13
21	15 2.6	17 1 20.83	22 46 37.2	0.5	1.8 0.13	5	11 58.8	16 54 28.59	22 36 53.4	0.5	1.8 0.13
22	14 58.5	17 1 14.34	22 46 28.7	0.5	1.8 0.13	6	11 54.7	16 54 17.99	22 36 37.4	0.5	1.8 0.13
23	14 54.5	17 1 7.68	22 46 20.0	0.5	1.8 0.13	7	11 50.6	16 54 7.39	22 36 21.3	0.5	1.8 0.13
24	14 50.4	17 1 0.86	22 46 11.1	0.5	1.8 0.13	8	11 46.5	16 53 56.80	22 36 5.2	0.5	1.8 0.13
25	14 46.4	17 0 53.87	22 46 1.9	0.5	1.8 0.13	9	11 42.4	16 53 46.22	22 35 49.1	0.5	1.8 0.13

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° "	"	"	s		h m	h m s	° "	"	"	s
June 9	11 42.4	16 53 46.22	-22 35 49.1	0.5	1.8	0.13	July 25	8 34.8	16 47 4.39	-22 25 8.4	0.5	1.8	0.13
10	11 38.3	16 53 35.66	-22 35 33.0	0.5	1.8	0.13	26	8 30.8	16 46 58.85	-22 24 59.3	0.5	1.8	0.13
11	11 34.1	16 53 25.13	-22 35 16.9	0.5	1.8	0.13	27	8 26.8	16 46 53.50	-22 24 50.5	0.5	1.8	0.13
12	11 30.0	16 53 14.62	-22 35 0.8	0.5	1.8	0.13	28	8 22.8	16 46 48.33	-22 24 42.0	0.5	1.8	0.13
13	11 25.9	16 53 4.13	-22 34 44.8	0.5	1.8	0.13	29	8 18.7	16 46 43.35	-22 24 33.8	0.5	1.8	0.13
14	11 21.8	16 52 53.68	-22 34 28.7	0.5	1.8	0.13	30	8 14.7	16 46 38.55	-22 24 26.0	0.5	1.8	0.13
15	11 17.7	16 52 43.28	-22 34 12.6	0.5	1.8	0.13	31	8 10.7	16 46 33.94	-22 24 18.4	0.5	1.8	0.13
16	11 13.6	16 52 32.91	-22 33 56.5	0.5	1.8	0.13	Aug. 1	8 6.7	16 46 29.52	-22 24 11.2	0.5	1.8	0.13
17	11 9.5	16 52 22.58	-22 33 40.4	0.5	1.8	0.13	2	8 2.7	16 46 25.30	-22 24 4.3	0.5	1.8	0.13
18	11 5.4	16 52 12.31	-22 33 24.4	0.5	1.8	0.13	3	7 58.7	16 46 21.28	-22 23 57.7	0.5	1.8	0.13
19	11 1.3	16 52 2.10	-22 33 8.5	0.5	1.8	0.13	4	7 54.7	16 46 17.45	-22 23 51.5	0.5	1.8	0.13
20	10 57.2	16 51 51.95	-22 32 52.6	0.5	1.8	0.13	5	7 50.7	16 46 13.82	-22 23 45.6	0.5	1.8	0.13
21	10 53.1	16 51 41.87	-22 32 36.8	0.5	1.8	0.13	6	7 46.7	16 46 10.40	-22 23 40.1	0.5	1.8	0.13
22	10 49.0	16 51 31.85	-22 32 21.1	0.5	1.8	0.13	7	7 42.8	16 46 7.18	-22 23 35.0	0.5	1.8	0.13
23	10 44.9	16 51 21.91	-22 32 5.4	0.5	1.8	0.13	8	7 38.8	16 46 4.16	-22 23 30.2	0.5	1.8	0.13
24	10 40.8	16 51 12.04	-22 31 49.8	0.5	1.8	0.13	9	7 34.8	16 46 1.34	-22 23 25.8	0.5	1.8	0.13
25	10 36.7	16 51 2.26	-22 31 34.2	0.5	1.8	0.13	10	7 30.8	16 45 58.74	-22 23 21.7	0.5	1.8	0.13
26	10 32.6	16 50 52.57	-22 31 18.8	0.5	1.8	0.13	11	7 26.8	16 45 56.35	-22 23 18.0	0.5	1.8	0.13
27	10 28.5	16 50 42.96	-22 31 3.5	0.5	1.8	0.13	12	7 22.9	16 45 54.16	-22 23 14.6	0.5	1.8	0.13
28	10 24.4	16 50 33.45	-22 30 48.3	0.5	1.8	0.13	13	7 18.9	16 45 52.19	-22 23 11.6	0.5	1.8	0.13
29	10 20.4	16 50 24.04	-22 30 33.3	0.5	1.8	0.13	14	7 14.9	16 45 50.43	-22 23 9.1	0.5	1.8	0.13
30	10 16.3	16 50 14.73	-22 30 18.4	0.5	1.8	0.13	15	7 11.0	16 45 48.88	-22 23 6.9	0.5	1.8	0.13
July 1	10 12.2	16 50 5.52	-22 30 3.6	0.5	1.8	0.13	16	7 7.0	16 45 47.55	-22 23 5.1	0.5	1.8	0.13
2	10 8.1	16 49 56.42	-22 29 48.9	0.5	1.8	0.13	17	7 3.1	16 45 46.43	-22 23 3.7	0.5	1.8	0.13
3	10 4.0	16 49 47.42	-22 29 34.4	0.5	1.8	0.13	18	6 59.1	16 45 45.53	-22 23 2.6	0.5	1.8	0.13
4	9 59.9	16 49 38.54	-22 29 20.1	0.5	1.8	0.13	19	6 55.2	16 45 44.85	-22 23 1.9	0.5	1.8	0.13
5	9 55.9	16 49 29.78	-22 29 6.0	0.5	1.8	0.13	20	6 51.3	16 45 44.39	-22 23 1.6	0.5	1.8	0.13
6	9 51.8	16 49 21.14	-22 28 52.0	0.5	1.8	0.13	21	6 47.3	16 45 44.15	-22 23 1.7	0.5	1.8	0.13
7	9 47.7	16 49 12.62	-22 28 38.2	0.5	1.8	0.13	22	6 43.4	16 45 44.13	-22 23 2.2	0.5	1.8	0.13
8	9 43.6	16 49 4.23	-22 28 24.6	0.5	1.8	0.13	23	6 39.5	16 45 44.32	-22 23 3.0	0.5	1.8	0.13
9	9 39.6	16 48 55.97	-22 28 11.2	0.5	1.8	0.13	24	6 35.5	16 45 44.73	-22 23 4.2	0.5	1.8	0.13
10	9 35.5	16 48 47.84	-22 27 58.0	0.5	1.8	0.13	25	6 31.6	16 45 45.35	-22 23 5.8	0.5	1.8	0.13
11	9 31.5	16 48 39.85	-22 27 45.0	0.5	1.8	0.13	26	6 27.7	16 45 46.19	-22 23 7.8	0.5	1.8	0.13
12	9 27.4	16 48 32.01	-22 27 32.2	0.5	1.8	0.13	27	6 23.8	16 45 47.26	-22 23 10.2	0.5	1.8	0.13
13	9 23.3	16 48 24.32	-22 27 19.6	0.5	1.8	0.13	28	6 19.9	16 45 48.55	-22 23 13.0	0.5	1.8	0.13
14	9 19.3	16 48 16.77	-22 27 7.3	0.5	1.8	0.13	29	6 16.0	16 45 50.05	-22 23 16.2	0.5	1.8	0.13
15	9 15.2	16 48 9.36	-22 26 55.3	0.5	1.8	0.13	30	6 12.1	16 45 51.77	-22 23 19.8	0.5	1.8	0.13
16	9 11.2	16 48 2.11	-22 26 43.4	0.5	1.8	0.13	31	6 8.2	16 45 53.72	-22 23 23.7	0.5	1.8	0.13
17	9 7.1	16 47 55.02	-22 26 31.7	0.5	1.8	0.13	Sept. 1	6 4.3	16 45 55.89	-22 23 27.9	0.5	1.8	0.13
18	9 3.1	16 47 48.10	-22 26 20.3	0.5	1.8	0.13	2	6 0.4	16 45 58.27	-22 23 32.6	0.5	1.8	0.13
19	8 59.0	16 47 41.34	-22 26 9.2	0.5	1.8	0.13	3	5 56.5	16 46 0.87	-22 23 37.7	0.5	1.8	0.13
20	8 55.0	16 47 34.75	-22 25 58.4	0.5	1.8	0.13	4	5 52.6	16 46 3.69	-22 23 43.2	0.5	1.8	0.13
21	8 50.9	16 47 28.33	-22 25 47.8	0.5	1.8	0.13	5	5 48.7	16 46 6.73	-22 23 49.0	0.5	1.8	0.13
22	8 46.9	16 47 22.09	-22 25 37.5	0.5	1.8	0.13	6	5 44.8	16 46 9.99	-22 23 55.2	0.5	1.8	0.13
23	8 42.9	16 47 16.01	-22 25 27.5	0.5	1.8	0.13	7	5 41.0	16 46 13.47	-22 24 1.8	0.5	1.7	0.13
24	8 38.8	16 47 10.11	-22 25 17.8	0.5	1.8	0.13	8	5 37.1	16 46 17.16	-22 24 8.7	0.5	1.7	0.13
25	8 34.8	16 47 4.39	-22 25 8.4	0.5	1.8	0.13	9	5 33.2	16 46 21.07	-22 24 16.0	0.5	1.7	0.13

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Jan. 0	11 8.8	5 49 15.35	+22 10 43.4	0.3	1.3	0.10	Feb. 14	8 7.7	5 45 10.29	+22 10 58.1	0.3	1.3	0.09
1	11 4.7	5 49 8.24	22 10 42.7	0.3	1.3	0.10	15	8 3.8	5 45 7.34	22 10 59.8	0.3	1.3	0.09
2	11 0.7	5 49 1.17	22 10 41.9	0.3	1.3	0.10	16	7 59.8	5 45 4.52	22 11 1.5	0.3	1.3	0.09
3	10 56.6	5 48 54.15	22 10 41.2	0.3	1.3	0.10	17	7 55.8	5 45 1.83	22 11 3.3	0.3	1.3	0.09
4	10 52.6	5 48 47.17	22 10 40.5	0.3	1.3	0.10	18	7 51.8	5 44 59.27	22 11 5.2	0.3	1.3	0.09
5	10 48.5	5 48 40.24	+22 10 39.9	0.3	1.3	0.10	19	7 47.9	5 44 56.85	+22 11 7.1	0.3	1.3	0.09
6	10 44.5	5 48 33.36	22 10 39.3	0.3	1.3	0.10	20	7 43.9	5 44 54.58	22 11 9.1	0.3	1.3	0.09
7	10 40.4	5 48 26.53	22 10 38.8	0.3	1.3	0.10	21	7 39.9	5 44 52.45	22 11 11.1	0.3	1.3	0.09
8	10 36.4	5 48 19.75	22 10 38.3	0.3	1.3	0.10	22	7 36.0	5 44 50.45	22 11 13.2	0.3	1.3	0.09
9	10 32.3	5 48 13.03	22 10 37.9	0.3	1.3	0.10	23	7 32.0	5 44 48.60	22 11 15.4	0.3	1.3	0.09
10	10 28.3	5 48 6.37	+22 10 37.6	0.3	1.3	0.10	24	7 28.0	5 44 46.90	+22 11 17.6	0.3	1.3	0.09
11	10 24.3	5 47 59.78	22 10 37.3	0.3	1.3	0.10	25	7 24.1	5 44 45.34	22 11 19.9	0.3	1.3	0.09
12	10 20.2	5 47 53.25	22 10 37.0	0.3	1.3	0.10	26	7 20.1	5 44 43.92	22 11 22.3	0.3	1.3	0.09
13	10 16.2	5 47 46.79	22 10 36.8	0.3	1.3	0.10	27	7 16.2	5 44 42.64	22 11 24.8	0.3	1.3	0.09
14	10 12.1	5 47 40.40	22 10 36.6	0.3	1.3	0.10	28	7 12.2	5 44 41.51	22 11 27.3	0.3	1.3	0.09
15	10 8.1	5 47 34.08	+22 10 36.5	0.3	1.3	0.10	Mar. 1	7 8.3	5 44 40.52	+22 11 29.9	0.3	1.3	0.09
16	10 4.1	5 47 27.84	22 10 36.4	0.3	1.3	0.10	2	7 4.3	5 44 39.68	22 11 32.5	0.3	1.3	0.09
17	10 0.0	5 47 21.68	22 10 36.4	0.3	1.3	0.10	3	7 0.4	5 44 38.98	22 11 35.2	0.3	1.3	0.09
18	9 56.0	5 47 15.60	22 10 36.5	0.3	1.3	0.10	4	6 56.4	5 44 38.43	22 11 37.9	0.3	1.3	0.09
19	9 52.0	5 47 9.61	22 10 36.6	0.3	1.3	0.10	5	6 52.5	5 44 38.03	22 11 40.7	0.3	1.3	0.09
20	9 48.0	5 47 3.70	+22 10 36.7	0.3	1.3	0.10	6	6 48.6	5 44 37.77	+22 11 43.6	0.3	1.3	0.09
21	9 43.9	5 46 57.88	22 10 36.8	0.3	1.3	0.10	7	6 44.6	5 44 37.65	22 11 46.5	0.3	1.3	0.09
22	9 39.9	5 46 52.16	22 10 37.0	0.3	1.3	0.10	8	6 40.7	5 44 37.68	22 11 49.5	0.3	1.3	0.09
23	9 35.9	5 46 46.53	22 10 37.2	0.3	1.3	0.10	9	6 36.8	5 44 37.86	22 11 52.6	0.3	1.3	0.09
24	9 31.8	5 46 40.99	22 10 37.5	0.3	1.3	0.10	10	6 32.8	5 44 38.19	22 11 55.7	0.3	1.3	0.09
25	9 27.8	5 46 35.55	+22 10 37.8	0.3	1.3	0.10	11	6 28.9	5 44 38.66	+22 11 58.9	0.3	1.3	0.09
26	9 23.8	5 46 30.20	22 10 38.2	0.3	1.3	0.10	12	6 25.0	5 44 39.28	22 12 2.1	0.3	1.3	0.09
27	9 19.8	5 46 24.96	22 10 38.7	0.3	1.3	0.10	13	6 21.1	5 44 40.05	22 12 5.4	0.3	1.3	0.09
28	9 15.8	5 46 19.83	22 10 39.3	0.3	1.3	0.10	14	6 17.2	5 44 40.96	22 12 8.7	0.3	1.3	0.09
29	9 11.7	5 46 14.80	22 10 40.0	0.3	1.3	0.10	15	6 13.3	5 44 42.02	22 12 12.1	0.3	1.3	0.09
30	9 7.7	5 46 9.89	+22 10 40.7	0.3	1.3	0.09	16	6 9.3	5 44 43.23	+22 12 15.5	0.3	1.3	0.09
31	9 3.7	5 46 5.09	22 10 41.4	0.3	1.3	0.09	17	6 5.4	5 44 44.59	22 12 19.0	0.3	1.3	0.09
Feb. 1	8 59.7	5 46 0.39	22 10 42.2	0.3	1.3	0.09	18	6 1.5	5 44 46.10	22 12 22.5	0.3	1.3	0.09
2	8 55.7	5 45 55.80	22 10 43.1	0.3	1.3	0.09	19	5 57.6	5 44 47.76	22 12 26.0	0.3	1.3	0.09
3	8 51.7	5 45 51.33	22 10 44.0	0.3	1.3	0.09	20	5 53.7	5 44 49.58	22 12 29.6	0.3	1.3	0.09
4	8 47.7	5 45 46.98	+22 10 45.0	0.3	1.3	0.09	Sept. 21	18 3.7	6 6 14.72	+22 16 19.6	0.3	1.3	0.09
5	8 43.7	5 45 42.75	22 10 46.0	0.3	1.3	0.09	22	17 59.8	6 6 16.49	22 16 17.4	0.3	1.3	0.09
6	8 39.7	5 45 38.64	22 10 47.1	0.3	1.3	0.09	23	17 55.9	6 6 18.12	22 16 15.3	0.3	1.3	0.09
7	8 35.7	5 45 34.65	22 10 48.3	0.3	1.3	0.09	24	17 52.0	6 6 19.61	22 16 13.2	0.3	1.3	0.09
8	8 31.7	5 45 30.79	22 10 49.5	0.3	1.3	0.09	25	17 48.1	6 6 20.95	22 16 11.1	0.3	1.3	0.09
9	8 27.7	5 45 27.06	+22 10 50.8	0.3	1.3	0.09	26	17 44.2	6 6 22.15	+22 16 9.0	0.3	1.3	0.09
10	8 23.7	5 45 23.45	22 10 52.1	0.3	1.3	0.09	27	17 40.3	6 6 23.20	22 16 6.9	0.3	1.3	0.09
11	8 19.7	5 45 19.96	22 10 53.5	0.3	1.3	0.09	28	17 36.4	6 6 24.12	22 16 4.9	0.3	1.3	0.09
12	8 15.7	5 45 16.60	22 10 55.0	0.3	1.3	0.09	29	17 32.5	6 6 24.89	22 16 2.9	0.3	1.3	0.09
13	8 11.7	5 45 13.38	22 10 56.5	0.3	1.3	0.09	30	17 28.5	6 6 25.51	22 16 0.9	0.3	1.3	0.09
14	8 7.7	5 45 10.29	+22 10 58.1	0.3	1.3	0.09	Oct. 1	17 24.6	6 6 25.99	+22 15 58.9	0.3	1.3	0.09
15	8 3.8	5 45 7.34	+22 10 59.8	0.3	1.3	0.09	2	17 20.7	6 6 26.33	+22 15 56.9	0.3	1.3	0.09

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi- diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ' "	"	"	s		h m	h m s	° ' "	"	"	s
Oct. 1	17 24.6	6 6 25.99	+22 15 58.9	0.3	1.3	0.09	Nov. 16	14 21.7	6 4 19.19	+22 15 2.3	0.3	1.3	0.10
2	17 20.7	6 6 26.33	22 15 56.9	0.3	1.3	0.09	17	14 17.7	6 4 13.60	22 15 1.9	0.3	1.3	0.10
3	17 16.8	6 6 26.52	22 15 55.0	0.3	1.3	0.09	18	14 13.6	6 4 7.92	22 15 1.5	0.3	1.3	0.10
4	17 12.8	6 6 26.56	22 15 53.1	0.3	1.3	0.09	19	14 9.6	6 4 2.14	22 15 1.2	0.3	1.3	0.10
5	17 8.9	6 6 26.46	22 15 51.2	0.3	1.3	0.09	20	14 5.6	6 3 56.28	22 15 0.9	0.3	1.3	0.10
6	17 5.0	6 6 26.21	+22 15 49.3	0.3	1.3	0.09	21	14 1.5	6 3 50.33	+22 15 0.6	0.3	1.3	0.10
7	17 1.0	6 6 25.82	22 15 47.5	0.3	1.3	0.09	22	13 57.5	6 3 44.30	22 15 0.3	0.3	1.3	0.10
8	16 57.1	6 6 25.29	22 15 45.7	0.3	1.3	0.09	23	13 53.5	6 3 38.18	22 15 0.1	0.3	1.3	0.10
9	16 53.1	6 6 24.62	22 15 43.9	0.3	1.3	0.09	24	13 49.4	6 3 31.99	22 14 59.9	0.3	1.3	0.10
10	16 49.2	6 6 23.79	22 15 42.2	0.3	1.3	0.09	25	13 45.4	6 3 25.71	22 14 59.7	0.3	1.3	0.10
11	16 45.3	6 6 22.81	+22 15 40.5	0.3	1.3	0.09	26	13 41.3	6 3 19.36	+22 14 59.6	0.3	1.3	0.10
12	16 41.3	6 6 21.68	22 15 38.8	0.3	1.3	0.09	27	13 37.3	6 3 12.94	22 14 59.5	0.3	1.3	0.10
13	16 37.4	6 6 20.41	22 15 37.2	0.3	1.3	0.09	28	13 33.3	6 3 6.45	22 14 59.4	0.3	1.3	0.10
14	16 33.4	6 6 19.01	22 15 35.6	0.3	1.3	0.09	29	13 29.2	6 2 59.90	22 14 59.4	0.3	1.3	0.10
15	16 29.4	6 6 17.48	22 15 34.0	0.3	1.3	0.09	30	13 25.2	6 2 53.28	22 14 59.4	0.3	1.3	0.10
16	16 25.5	6 6 15.80	+22 15 32.5	0.3	1.3	0.09	Dec. 1	13 21.2	6 2 46.59	+22 14 59.4	0.3	1.3	0.10
17	16 21.5	6 6 13.98	22 15 31.0	0.3	1.3	0.09	2	13 17.1	6 2 39.84	22 14 59.5	0.3	1.3	0.10
18	16 17.6	6 6 12.01	22 15 29.5	0.3	1.3	0.09	3	13 13.1	6 2 33.04	22 14 59.6	0.3	1.3	0.10
19	16 13.6	6 6 9.90	22 15 28.1	0.3	1.3	0.09	4	13 9.0	6 2 26.18	22 14 59.7	0.3	1.3	0.10
20	16 9.6	6 6 7.66	22 15 26.7	0.3	1.3	0.09	5	13 5.0	6 2 19.27	22 14 59.8	0.3	1.3	0.10
21	16 5.7	6 6 5.28	+22 15 25.3	0.3	1.3	0.09	6	13 0.9	6 2 12.31	+22 15 0.0	0.3	1.3	0.10
22	16 1.7	6 6 2.76	22 15 24.0	0.3	1.3	0.09	7	12 56.9	6 2 5.30	22 15 0.2	0.3	1.3	0.10
23	15 57.7	6 6 0.10	22 15 22.7	0.3	1.3	0.09	8	12 52.8	6 1 58.25	22 15 0.4	0.3	1.3	0.10
24	15 53.7	6 5 57.32	22 15 21.5	0.3	1.3	0.09	9	12 48.8	6 1 51.16	22 15 0.6	0.3	1.3	0.10
25	15 49.7	6 5 54.41	22 15 20.3	0.3	1.3	0.09	10	12 44.7	6 1 44.04	22 15 0.9	0.3	1.3	0.10
26	15 45.8	6 5 51.37	+22 15 19.1	0.3	1.3	0.09	11	12 40.7	6 1 36.88	+22 15 1.2	0.3	1.3	0.10
27	15 41.8	6 5 48.19	22 15 17.9	0.3	1.3	0.09	12	12 36.6	6 1 29.69	22 15 1.5	0.3	1.3	0.10
28	15 37.8	6 5 44.87	22 15 16.8	0.3	1.3	0.09	13	12 32.6	6 1 22.47	22 15 1.9	0.3	1.3	0.10
29	15 33.8	6 5 41.43	22 15 15.7	0.3	1.3	0.09	14	12 28.5	6 1 15.23	22 15 2.3	0.3	1.3	0.10
30	15 29.8	6 5 37.87	22 15 14.6	0.3	1.3	0.09	15	12 24.5	6 1 7.96	22 15 2.7	0.3	1.3	0.10
31	15 25.8	6 5 34.18	+22 15 13.6	0.3	1.3	0.09	16	12 20.4	6 1 0.68	+22 15 3.1	0.3	1.3	0.10
Nov. 1	15 21.8	6 5 30.36	22 15 12.6	0.3	1.3	0.09	17	12 16.4	6 0 53.39	22 15 3.5	0.3	1.3	0.10
2	15 17.8	6 5 26.42	22 15 11.7	0.3	1.3	0.09	18	12 12.3	6 0 46.08	22 15 4.0	0.3	1.3	0.10
3	15 13.8	6 5 22.36	22 15 10.8	0.3	1.3	0.09	19	12 8.3	6 0 38.76	22 15 4.5	0.3	1.3	0.10
4	15 9.8	6 5 18.19	22 15 9.9	0.3	1.3	0.09	20	12 4.2	6 0 31.44	22 15 5.1	0.3	1.3	0.10
5	15 5.8	6 5 13.89	+22 15 9.1	0.3	1.3	0.09	21	12 0.1	6 0 24.10	+22 15 5.7	0.3	1.3	0.10
6	15 1.8	6 5 9.47	22 15 8.3	0.3	1.3	0.09	22	11 56.1	6 0 16.76	22 15 6.3	0.3	1.3	0.10
7	14 57.8	6 5 4.93	22 15 7.5	0.3	1.3	0.09	23	11 52.0	6 0 9.42	22 15 6.9	0.3	1.3	0.10
8	14 53.8	6 5 0.27	22 15 6.8	0.3	1.3	0.09	24	11 48.0	6 0 2.10	22 15 7.5	0.3	1.3	0.10
9	14 49.8	6 4 55.50	22 15 6.1	0.3	1.3	0.09	25	11 43.9	5 59 54.78	22 15 8.2	0.3	1.3	0.10
10	14 45.8	6 4 50.63	+22 15 5.5	0.3	1.3	0.09	26	11 39.9	5 59 47.47	+22 15 8.9	0.3	1.3	0.10
11	14 41.8	6 4 45.65	22 15 4.9	0.3	1.3	0.10	27	11 35.8	5 59 40.16	22 15 9.6	0.3	1.3	0.10
12	14 37.8	6 4 40.57	22 15 4.3	0.3	1.3	0.10	28	11 31.7	5 59 32.87	22 15 10.4	0.3	1.3	0.10
13	14 33.7	6 4 35.37	22 15 3.8	0.3	1.3	0.10	29	11 27.7	5 59 25.61	22 15 11.2	0.3	1.3	0.10
14	14 29.7	6 4 30.07	22 15 3.3	0.3	1.3	0.10	30	11 23.6	5 59 18.37	22 15 12.0	0.3	1.3	0.10
15	14 25.7	6 4 24.68	+22 15 2.8	0.3	1.3	0.10	31	11 19.6	5 59 11.16	+22 15 12.8	0.3	1.3	0.10
16	14 21.7	6 4 19.19	+22 15 2.3	0.3	1.3	0.10	32	11 15.6	5 59 3.97	+22 15 13.6	0.3	1.3	0.10

PART III

PHENOMENA

ECLIPSES IN 1901.

IN the year 1901 there will be two eclipses of the Sun, one of the Moon, and a Lunar Appulse.

I.—*A Lunar Appulse, May 3, 1901.*

ELEMENTS OF THE APPULSE.

				d	h	m	s
Greenwich mean time of φ in right ascension, May 3				6	56	17.0	
Sun's right ascension	h	m	s				s
	2	40	42.05				9.58
Hourly motion							
Moon's right ascension	14	40	42.05				121.07
Hourly motion							
Sun's declination	15	38	3.4 N.				0 44.2 N.
Hourly motion							
Moon's declination	16	33	53.6 S.				6 25.7 S.
Hourly motion							
Sun's equa. hor. parallax			8.7				15 51.5
Sun's true semidiameter							
Moon's equa. hor. parallax	54	3.8					14 43.2
Moon's true semidiameter							
Nearest approach of Moon to earth's shadow, May 3,				6 ^h	30 ^m	8	
Distance of Moon's limb from shadow,					51 ^{''}	9	
Angle of position of point of nearest approach,				12°	to the East from north point.		

II.—*A Total Eclipse of the Sun, 1901, May 17, invisible at Washington.*

ELEMENTS OF THE ECLIPSE.

				d	h	m	s
Greenwich mean time of δ in right ascension, May 17				17	28	45.3	
Sun and moon's R. A.	h	m	s				s
	3	37	2.49				9.93 and 157.85
Hourly motions							
Sun's declination	19	23	49.2 N.				0 33.6 N.
Hourly motion							
Moon's declination	19	1	31.5 N.				5 20.9 N.
Hourly motion							
Sun's equa. hor. parallax			8.7				15 48.4
Sun's true semidiameter							
Moon's equa. hor. parallax	60	58.5					16 36.1
Moon's true semidiameter							

CIRCUMSTANCES OF THE ECLIPSE.

	Greenwich Mean Time.			Longitude from Greenwich.			Latitude.		
	d	h	m	°	'		°	'	
Eclipse begins	May	17	14 59.9	51	34.4	E.	20	21.9	S.
Central eclipse begins		17	15 57.6	40	11.2	E.	27	27.6	S.
Central eclipse at noon		17	17 28.8	96	51.9	E.	2	7.1	S.
Central eclipse ends		17	19 10.2	156	53.6	E.	12	49.0	S.
Eclipse ends		17	20 7.9	145	4.5	E.	5	38.0	S.

TOTAL ECLI



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Note: The hours of beginning and

III.—*A Partial Eclipse of the Moon*, 1901, October 27, invisible at Washington; the beginning visible generally throughout the eastern portion of Europe, in Asia, the Pacific Ocean, and Alaska; the end visible generally throughout Europe, the eastern portion of Africa, in Asia, and the Pacific Ocean.

ELEMENTS OF THE ECLIPSE.

Greenwich mean time of δ in right ascension, October 27				d	h	m	s
				27	3	39	5.7
Sun's right ascension	h	m	s	14	5	10.33	
Moon's right ascension	2	5	10.33				
Sun's declination	12	41	51.1 S.				
Moon's declination	13	38	56.0 N.				
Sun's equa. hor. parallax	8.9						
Moon's equa. hor. parallax	61	20.3					
Hourly motion							9.62
Hourly motion							151.85
Hourly motion							0 50.9 S.
Hourly motion							9 39.2 N.
Sun's true semidiameter	16	6.0					
Moon's true semidiameter	16	42.0					

CIRCUMSTANCES OF THE ECLIPSE.

Moon enters penumbra				d	h	m	} Greenwich Mean Time.
October				27	1	3.5	
Moon enters shadow				27	2	24.7	
Middle of the eclipse				27	3	15.4	
Moon leaves shadow				27	4	5.9	
Moon leaves penumbra				27	5	27.3	
Contacts of Shadow with moon's limb.	Angles of position from the north point.	The moon being in the zenith in longitude from Greenwich,		and in latitude.			
First	137 to E.	139	6 E.	13	27 N.		
Last	166 to W.	114	47 E.	13	43 N.		

Magnitude of the eclipse = 0.228 (moon's diameter = 1.0).

IV.—*An Annular Eclipse of the Sun*, 1901, November 10, invisible at Washington.

ELEMENTS OF THE ECLIPSE.

Greenwich mean time of δ in right ascension, November 10				d	h	m	s
				10	19	18	3.2
Sun and moon's R. A.	h	m	s	15	3	0.48	
Sun's declination	17	15	41.7 S.				
Moon's declination	16	49	40.8 S.				
Sun's equa. hor. parallax	8.9						
Moon's equa. hor. parallax	53	56.0					
Hourly motions	10.12	and	121.42				
Hourly motion	0	41.9	S.				
Hourly motion	5	33.8	S.				
Sun's true semidiameter	16	9.6					
Moon's true semidiameter	14	41.1					

CIRCUMSTANCES OF THE ECLIPSE.

Greenwich Mean Time.				Longitude from Greenwich.		Latitude.	
d	h	m	s	°	'	°	'
Eclipse begins	November	10	16 29.8	27	34.3 E.	26	46.0 N.
Central eclipse begins		10	17 43.7	13	34.0 E.	36	55.7 N.
Central eclipse at noon		10	19 18.1	66	29.9 E.	11	44.6 N.
Central eclipse ends		10	21 13.2	122	7.9 E.	17	20.8 N.
Eclipse ends		10	22 27.2	107	1.7 E.	6	59.8 N.

The regions within which the eclipses of the sun are visible, are laid down on the accompanying charts; from which, by means of the dotted lines, the Greenwich time of beginning and ending may be found, within fifteen or twenty minutes.

BESSELIAN ELEMENTS OF THE TOTAL ECLIPSE
OF THE SUN, 1901, MAY 17.

Greenwich Mean Time.	Co-ordinates of Centre of Shadow on Fundamental Plane.		Direction of Axis of Shadow.			Radius of Penumbra and Shadow on Fundamental Plane.	
	<i>x</i>	<i>y</i>	Log sin <i>d</i>	Log cos <i>d</i>	μ	<i>l</i>	<i>l'</i>
h m					° '		
14 50	— 1.52046	— 0.57541	+ 9.52079	+ 9.97468	223 26.6	+ 0.53256	— 0.01329
15 0	— 1.42470	— 0.56220	+ 9.52082	+ 9.97468	225 56.6	+ 0.53258	— 0.01327
10	1.32894	0.54900	9.52085	9.97468	228 26.7	0.53260	0.01325
20	1.23318	0.53580	9.52088	9.97467	230 56.7	0.53262	0.01323
30	1.13742	0.52262	9.52092	9.97467	233 26.7	0.53263	0.01321
40	1.04165	0.50945	9.52095	9.97467	235 56.7	0.53265	0.01320
50	0.94588	0.49629	9.52098	9.97466	238 26.7	0.53266	0.01318
16 0	— 0.85011	— 0.48313	+ 9.52102	+ 9.97466	240 56.7	+ 0.53268	— 0.01317
10	0.75434	0.46997	9.52105	9.97466	243 26.7	0.53269	0.01315
20	0.65856	0.45682	9.52108	9.97465	245 56.7	0.53270	0.01314
30	0.56278	0.44367	9.52112	9.97465	248 26.7	0.53271	0.01312
40	0.46700	0.43053	9.52115	9.97464	250 56.7	0.53272	0.01311
50	0.37122	0.41739	9.52118	9.97464	253 26.8	0.53274	0.01310
17 0	— 0.27544	— 0.40425	+ 9.52122	+ 9.97463	255 56.8	+ 0.53276	— 0.01309
10	0.17966	0.39113	9.52125	9.97463	258 26.8	0.53277	0.01308
20	— 0.08387	0.37802	9.52128	9.97462	260 56.8	0.53278	0.01307
30	+ 0.01192	0.36491	9.52131	9.97462	263 26.8	0.53279	0.01306
40	0.10771	0.35180	9.52134	9.97462	265 56.8	0.53280	0.01305
50	0.20350	0.33870	9.52138	9.97461	268 26.8	0.53281	0.01304
18 0	+ 0.29929	— 0.32561	+ 9.52141	+ 9.97461	270 56.8	+ 0.53281	— 0.01304
10	0.39509	0.31253	9.52144	9.97460	273 26.9	0.53281	0.01303
20	0.49089	0.29945	9.52148	9.97460	275 56.9	0.53282	0.01303
30	0.58668	0.28638	9.52151	9.97459	278 26.9	0.53282	0.01303
40	0.68247	0.27331	9.52154	9.97459	280 56.9	0.53282	0.01302
50	0.77826	0.26025	9.52158	9.97458	283 26.9	0.53283	0.01302
19 0	+ 0.87404	— 0.24720	+ 9.52161	+ 9.97458	285 56.9	+ 0.53283	— 0.01302
10	0.96982	0.23416	9.52164	9.97458	288 26.9	0.53283	0.01302
20	1.06560	0.22113	9.52167	9.97457	290 56.9	0.53283	0.01302
30	1.16138	0.20810	9.52171	9.97457	293 26.9	0.53283	0.01302
40	1.25716	0.19508	9.52174	9.97457	295 57.0	0.53284	0.01302
50	1.35293	0.18207	9.52177	9.97456	298 27.0	0.53284	0.01302
20 0	+ 1.44870	— 0.16907	+ 9.52181	+ 9.97456	300 57.0	+ 0.53284	— 0.01303
10	+ 1.54446	— 0.15607	+ 9.52184	+ 9.97456	303 27.0	+ 0.53283	— 0.01303

Greenwich Mean Time.	Log Δx for 1 Minute.	Log Δy for 1 Minute.	Log $\Delta \mu$ for 1 Minute.	Log Tangents of Angles of Cones—	
				Penumbra.	Shadow.
h m					
15 0	+ 7.9812	+ 7.1204	+ 1.1761	+ 7.66470	+ 7.66253
16 0	7.9812	7.1193	1.1761	7.66469	7.66253
17 0	7.9813	7.1182	1.1761	7.66469	7.66252
18 0	7.9813	7.1169	1.1761	7.66469	7.66252
19 0	7.9813	7.1155	1.1761	7.66468	7.66252
20 0	+ 7.9812	+ 7.1141	+ 1.1761	+ 7.66468	+ 7.66251

PATH OF THE SHADOW DURING THE TOTAL ECLIPSE
OF THE SUN, 1901, MAY 17.

Greenwich Mean Time.	Northern Limit of Shadow Path.		Central Line.		Southern Limit of Shadow Path.		Duration of Totality on Central Line.
	Latitude.	Longitude from Greenwich.	Latitude.	Longitude from Greenwich.	Latitude.	Longitude from Greenwich.	
Limits.	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	m s
16 0	- 26 41.7	39 56.6 E.	- 27 27.6	40 11.2 E.	- 28 11.9	40 27.6 E.	
h m							
5	- 21 50.4	52 8.3	- 22 55.2	51 45.5	- 24 0.0	51 22.7	3 20.9
10	18 27.2	59 33.0	19 25.5	59 32.3	20 23.8	59 31.6	3 46.7
15	16 6.3	64 22.4	17 3.3	64 29.0	18 0.3	64 35.6	4 6.4
20	14 13.0	68 6.1	15 9.2	68 16.4	16 5.4	68 26.7	4 23.1
25	12 35.6	71 12.6	13 32.3	71 25.2	14 29.0	71 37.8	4 38.0
	11 10.1	73 55.2	12 7.1	74 9.5	13 4.1	74 23.8	4 51.6
30	- 9 53.8	76 20.5	- 10 51.1	76 35.9	- 11 48.4	76 51.3	5 4.2
35	8 44.9	78 32.9	9 42.5	78 48.9	10 40.1	79 4.9	5 15.8
40	7 42.0	80 35.4	8 40.1	80 52.0	9 38.2	81 8.6	5 26.6
45	6 44.3	82 30.3	7 42.9	82 47.1	8 41.5	83 3.9	5 36.5
50	5 51.4	84 19.1	6 50.5	84 36.0	7 49.6	84 52.9	5 45.6
55	5 2.6	86 3.1	6 2.2	86 20.0	7 1.8	86 36.9	5 53.9
17 0	- 4 17.8	87 42.9	- 5 17.8	87 59.8	- 6 17.8	88 16.7	6 1.2
5	3 36.6	89 19.8	4 37.0	89 36.5	5 37.4	89 53.2	6 7.6
10	2 58.8	90 54.3	3 59.6	91 10.7	5 0.4	91 27.1	6 13.2
15	2 24.2	92 27.2	3 25.5	92 43.1	4 26.8	92 59.0	6 17.9
20	1 52.7	93 58.8	2 54.4	94 14.2	3 56.1	94 29.6	6 21.7
25	1 24.3	95 29.5	2 26.3	95 44.4	3 28.3	95 59.3	6 24.4
30	- 0 58.9	96 59.9	- 2 1.1	97 14.2	- 3 3.3	97 28.5	6 26.1
35	0 36.4	98 30.3	1 38.9	98 44.0	2 41.4	98 57.7	6 26.8
40	0 16.8	100 1.3	1 19.5	100 14.3	2 22.2	100 27.3	6 26.5
45	- 0 0.2	101 33.1	1 3.1	101 45.4	2 6.0	101 57.7	6 25.2
50	+ 0 13.4	103 6.3	0 49.6	103 17.8	1 52.6	103 29.3	6 22.8
55	0 23.9	104 41.0	0 39.1	104 51.8	1 42.1	105 2.6	6 19.2
18 0	+ 0 31.3	106 18.1	- 0 31.7	106 28.1	- 1 34.7	106 38.1	6 14.5
5	0 35.3	107 57.9	0 27.6	108 7.1	1 30.5	108 16.3	6 8.9
10	0 35.9	109 41.0	0 26.9	109 49.5	1 29.7	109 58.0	6 2.3
15	0 32.8	111 28.0	0 29.8	111 35.8	1 32.4	111 43.6	5 54.6
20	0 25.7	113 20.1	0 36.7	113 27.2	1 39.1	113 34.3	5 46.1
25	+ 0 14.2	115 18.0	0 47.8	115 24.5	1 49.8	115 31.0	5 36.6
30	- 0 2.1	117 22.8	- 1 3.7	117 28.9	- 2 5.3	117 35.0	5 26.0
35	0 23.8	119 36.4	1 25.0	119 42.2	2 26.2	119 48.0	5 14.5
40	0 51.8	122 1.4	1 52.5	122 7.0	2 53.2	122 12.6	5 1.9
45	1 27.6	124 40.8	2 27.7	124 46.5	3 27.8	124 52.2	4 48.3
50	2 12.7	127 39.3	3 12.3	127 45.7	4 11.9	127 52.1	4 33.4
55	3 10.7	131 5.9	4 9.9	131 13.7	5 9.1	131 21.5	4 16.9
19 0	- 4 27.0	135 16.2	- 5 26.0	135 27.0	- 6 25.0	135 37.8	3 58.3
5	6 17.7	140 49.6	7 17.8	141 8.4	8 17.9	141 27.2	3 36.2
10	10 8.4	151 0.0	11 45.2	153 20.3	13 22.0	155 40.6	2 57.8
Limits.	- 12 3.6	157 5.5 E.	- 12 49.0	156 53.6 E.	- 13 34.1	156 41.6 E.	

BESSELIAN ELEMENTS OF THE ANNULAR ECLIPSE OF THE SUN; 1901, NOVEMBER 10.							
Greenwich Mean Time.	Co-ordinates of Centre of Shadow on Fundamental Plane.		Direction of Axis of Shadow.			Radius of Penumbra and Shadow on Fundamental Plane.	
	<i>x</i>	<i>y</i>	Log sin <i>d</i>	Log cos <i>d</i>	<i>μ</i>	<i>l</i>	<i>l'</i>
^h ^m							
16 20	— 1.46922	+ 0.75282	— 9.47157	+ 9.98006	248 59.3	+ 0.57336	+ 0.02731
30	1.38673	0.73767	9.47162	9.98006	251 29.3	0.57337	0.02732
40	1.30424	0.72252	9.47166	9.98005	253 59.3	0.57338	0.02733
50	1.22175	0.70738	9.47171	9.98005	256 29.3	0.57339	0.02734
17 0	— 1.13925	+ 0.69224	— 9.47176	+ 9.98004	258 59.3	+ 0.57340	+ 0.02735
10	1.05675	0.67711	9.47180	9.98004	261 29.3	0.57341	0.02736
20	0.97424	0.66198	9.47185	9.98004	263 59.3	0.57342	0.02737
30	0.89173	0.64685	9.47189	9.98003	266 29.3	0.57343	0.02737
40	0.80922	0.63173	9.47194	9.98003	268 59.3	0.57344	0.02738
50	0.72670	0.61661	9.47198	9.98003	271 29.3	0.57345	0.02738
18 0	— 0.64418	+ 0.60149	— 9.47203	+ 9.98002	273 59.3	+ 0.57345	+ 0.02739
10	0.56166	0.58638	9.47207	9.98002	276 29.3	0.57346	0.02740
20	0.47914	0.57127	9.47212	9.98001	278 59.3	0.57346	0.02740
30	0.39661	0.55617	9.47217	9.98001	281 29.3	0.57346	0.02741
40	0.31408	0.54107	9.47221	9.98000	283 59.3	0.57347	0.02741
50	0.23155	0.52598	9.47226	9.98000	286 29.3	0.57347	0.02742
19 0	— 0.14903	+ 0.51089	— 9.47231	+ 9.97999	288 59.3	+ 0.57347	+ 0.02742
10	— 0.06650	0.49581	9.47235	9.97999	291 29.3	0.57347	0.02742
20	+ 0.01603	0.48073	9.47240	9.97998	293 59.3	0.57347	0.02742
30	0.09856	0.46566	9.47245	9.97998	296 29.3	0.57348	0.02742
40	0.18109	0.45060	9.47249	9.97997	298 59.3	0.57348	0.02742
50	0.26362	0.43554	9.47254	9.97997	301 29.3	0.57348	0.02742
20 0	+ 0.34615	+ 0.42049	— 9.47259	+ 9.97996	303 59.3	+ 0.57348	+ 0.02742
10	0.42867	0.40545	9.47263	9.97996	306 29.3	0.57347	0.02742
20	0.51120	0.39041	9.47268	9.97995	308 59.3	0.57347	0.02741
30	0.59373	0.37537	9.47273	9.97995	311 29.3	0.57347	0.02741
40	0.67626	0.36033	9.47277	9.97994	313 59.3	0.57346	0.02741
50	0.75879	0.34530	9.47282	9.97994	316 29.3	0.57346	0.02741
21 0	+ 0.84132	+ 0.33027	— 9.47287	+ 9.97993	318 59.3	+ 0.57346	+ 0.02741
10	0.92384	0.31525	9.47291	9.97993	321 29.4	0.57345	0.02740
20	1.00637	0.30024	9.47295	9.97992	323 59.4	0.57345	0.02740
30	1.08890	0.28523	9.47300	9.97992	326 29.4	0.57344	0.02739
40	1.17143	0.27023	9.47304	9.97992	328 59.4	0.57344	0.02739
50	1.25396	0.25523	9.47309	9.97991	331 29.4	0.57343	0.02738
22 0	+ 1.33649	+ 0.24023	— 9.47314	+ 9.97991	333 59.4	+ 0.57343	+ 0.02738
10	1.41901	0.22524	9.47318	9.97990	336 29.4	0.57342	0.02737
20	1.50154	0.21025	9.47323	9.97990	338 59.4	0.57342	0.02737
30	+ 1.58406	+ 0.19526	— 9.47328	+ 9.97989	341 29.4	+ 0.57342	+ 0.02736

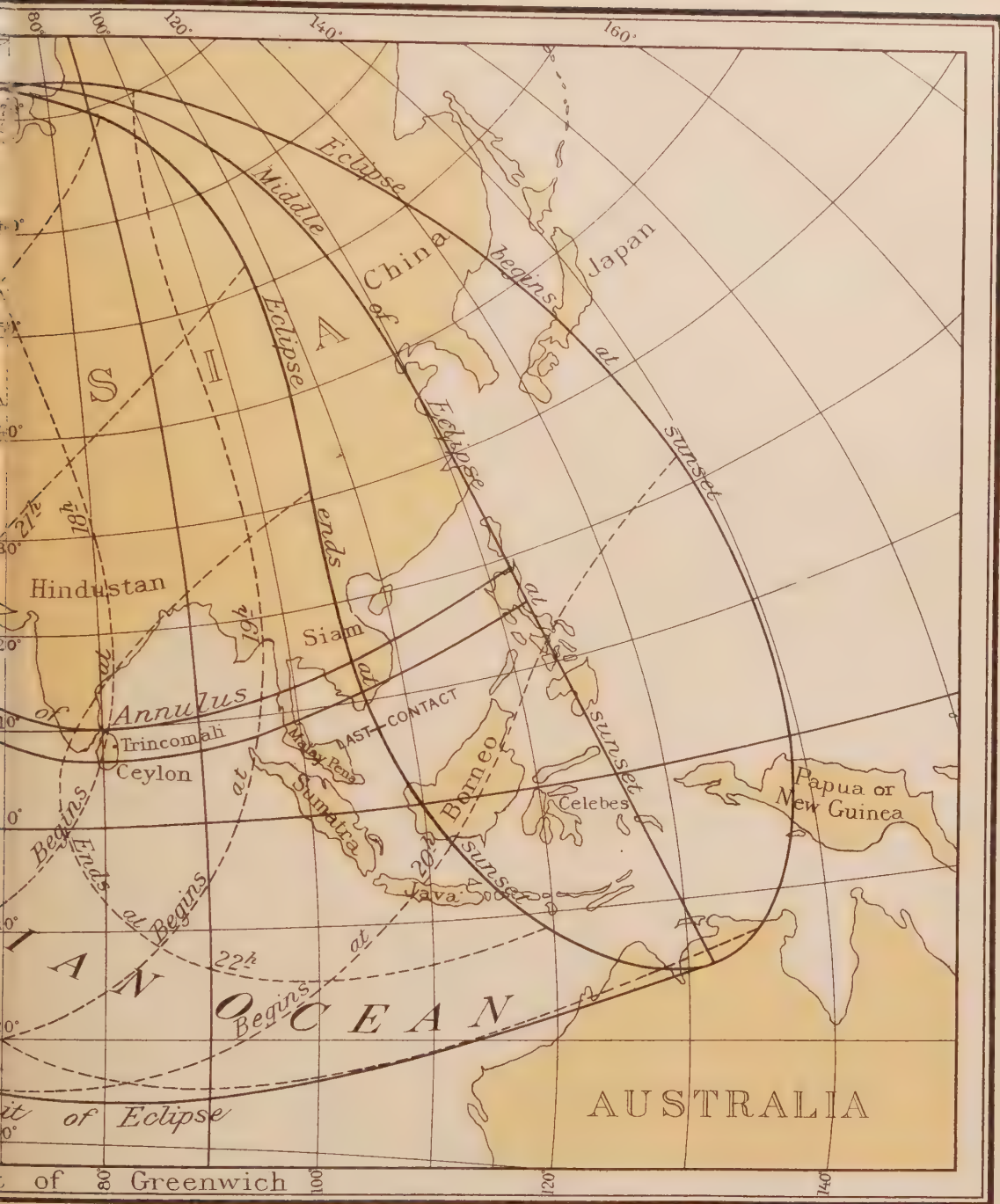
Greenwich Mean Time.	^h ^m	Log Δ <i>x</i> for 1 Minute.	Log Δ <i>y</i> for 1 Minute.	Log Δ <i>μ</i> for 1 Minute.	Log Tangents of Angles of Cones—	
					Penumbra.	Shadow.
16 0		+ 7.9163	— 7.1807	+ 1.1761	+ 7.67441	+ 7.67225
17 0		7.9165	7.1801	1.1761	7.67442	7.67225
18 0		7.9166	7.1793	1.1761	7.67442	7.67225
19 0		7.9166	7.1785	1.1761	7.67443	7.67226
20 0		7.9166	7.1776	1.1761	7.67443	7.67226
21 0		7.9166	7.1767	1.1761	7.67444	7.67227
22 0		+ 7.9166	— 7.1758	+ 1.1761	+ 7.67444	+ 7.67227

ANNULAR ECLIPS



Note:—The hours of beginning and

OF NOVEMBER 10TH 1901.



are expressed in Greenwich Mean Time.

PATH OF THE ANNULUS DURING THE ANNULAR ECLIPSE
OF THE SUN, 1901, NOVEMBER 10.

Greenwich Mean Time.	Northern Limit of Annulus Path.		Central Line.		Southern Limit of Annulus Path.		Duration of Annulus on Central Line.
	Latitude.	Longitude from Greenwich.	Latitude.	Longitude from Greenwich.	Latitude.	Longitude from Greenwich.	
Limits.	+ 38 36.4	14 8.4 E	+ 36 55.7	13 34.0 E	+ 35 15.0	13 5.4 E	m s
17 ^h 45 ^m	36 58.0	18 52.2	33 58.7	22 5.7	30 59.4	25 19.2	7 19.3
50	32 14.8	30 41.2	30 11.4	31 22.2	28 8.0	32 3.2	7 47.0
55	29 40.2	36 19.1	27 49.5	36 30.2	25 58.8	36 41.3	8 7.0
18 0	+ 27 39.5	40 20.2	+ 25 56.4	40 17.7	+ 24 13.3	40 15.2	8 24.2
5	25 59.0	43 31.5	24 20.3	43 21.4	22 41.6	43 11.3	8 39.7
10	24 30.9	46 13.1	22 55.9	45 57.2	21 20.9	45 41.3	8 53.7
15	23 11.9	48 33.0	21 39.4	48 13.2	20 6.9	47 53.4	9 7.1
20	22 1.1	50 37.7	20 30.5	50 15.4	18 59.9	49 53.1	9 19.9
25	20 56.1	52 30.4	19 27.0	52 6.2	17 57.9	51 42.0	9 31.9
30	+ 19 55.7	54 13.9	+ 18 27.8	53 48.2	+ 16 59.9	53 22.5	9 43.3
35	18 59.7	55 50.0	17 32.7	55 23.2	16 5.7	54 56.4	9 54.0
40	18 7.7	57 20.0	16 41.3	56 52.5	15 14.9	56 25.0	10 4.0
45	17 19.4	58 45.4	15 53.5	58 17.3	14 27.6	57 49.2	10 13.4
50	16 34.3	60 6.7	15 8.8	59 38.1	13 43.3	59 9.5	10 22.3
55	15 52.1	61 24.7	14 26.8	60 55.8	13 1.5	60 26.9	10 30.3
19 0	+ 15 12.5	62 40.1	+ 13 47.3	62 11.0	+ 12 22.1	61 41.9	10 37.5
5	14 35.6	63 53.6	13 10.3	63 24.4	11 45.0	62 55.2	10 43.8
10	14 1.0	65 5.4	12 35.6	64 36.3	11 10.2	64 7.2	10 49.4
15	13 28.8	66 16.0	12 3.2	65 47.0	10 37.6	65 18.0	10 53.9
20	12 58.9	67 25.7	11 33.1	66 56.9	10 7.3	66 28.1	10 57.5
25	12 31.4	68 35.1	11 5.2	68 6.5	9 39.0	67 37.9	11 0.3
30	+ 12 6.0	69 44.4	+ 10 39.4	69 16.0	+ 9 12.8	68 47.6	11 2.0
35	11 42.8	70 53.8	10 15.7	70 25.8	8 48.6	69 57.7	11 2.5
40	11 21.8	72 3.9	9 54.2	71 36.2	8 26.6	71 8.5	11 1.9
45	11 2.9	73 14.9	9 34.8	72 47.5	8 6.7	72 20.1	11 0.2
50	10 46.4	74 27.2	9 17.7	74 0.2	7 49.0	73 33.2	10 57.4
55	10 32.1	75 41.2	9 2.8	75 14.5	7 33.5	74 47.8	10 53.3
20 0	+ 10 20.1	76 57.3	+ 8 50.2	76 30.9	+ 7 20.3	76 4.5	10 48.2
5	10 10.5	78 15.9	8 39.9	77 49.8	7 9.3	77 23.7	10 42.2
10	10 3.6	79 37.7	8 32.2	79 11.8	7 0.8	78 45.9	10 34.9
15	9 59.4	81 3.2	8 27.2	80 37.4	6 55.0	80 11.6	10 26.2
20	9 58.3	82 33.3	8 25.2	82 7.5	6 52.1	81 41.7	10 16.4
25	10 0.4	84 8.7	8 26.3	83 42.7	6 52.2	83 16.7	10 5.8
30	+ 10 6.0	85 50.5	+ 8 30.9	85 24.1	+ 6 55.8	84 57.7	9 54.3
35	10 15.8	87 40.5	8 39.5	87 13.4	7 3.2	86 46.3	9 41.9
40	10 30.3	89 40.4	8 52.6	89 12.0	7 14.9	88 43.6	9 28.4
45	10 50.5	91 53.2	9 11.0	91 22.7	7 31.5	90 52.2	9 13.8
50	11 17.8	94 22.5	9 36.2	93 49.2	7 54.6	93 15.9	8 58.1
55	11 53.9	97 15.6	10 9.3	96 37.4	8 24.7	95 59.2	8 41.7
21 0	+ 12 44.3	100 44.2	+ 10 55.6	99 57.8	+ 9 6.9	99 11.4	8 23.2
5	13 55.1	105 25.3	12 0.2	104 22.2	10 5.3	103 19.1	8 2.0
10	16 2.2	112 25.2	13 47.2	110 30.5	11 32.2	108 35.8	7 35.8
Limits.	+ 19 3.3	121 52.2 E	+ 17 20.8	122 7.9 E	+ 15 38.9	122 23.8 E	

WASHINGTON MEAN TIME.

PHASES OF THE MOON.

New Moon.				First Quarter.				Full Moon.				Last Quarter.			
	d	h	m		d	h	m		d	h	m		d	h	m
January	19	21	27.5	January	26	16	43.9	January	4	7	5.2	January	12	3	29.9
February	18	9	36.9	February	25	1	29.9	February	2	22	21.5	February	11	1	3.7
March	19	19	44.7	March	26	11	30.6	March	4	14	56.1	March	12	19	57.9
April	18	4	29.1	April	24	23	6.6	April	3	8	11.9	April	11	10	48.8
May	17	12	29.3	May	24	12	31.3	May	3	1	10.6	May	10	21	29.7
June	15	20	24.6	June	23	3	50.6	June	1	16	44.4	June	9	4	51.6
July	15	5	2.2	July	22	20	49.9	July	1	6	9.3	July	8	10	11.6
August	13	15	19.2	August	21	14	43.7	August	30	17	25.4	August	6	14	53.6
September	12	4	10.2	September	20	8	25.0	September	29	3	12.8	September	4	20	18.9
October	11	20	3.0	October	20	0	49.3	October	27	12	27.4	October	4	3	43.9
November	10	14	25.9	November	18	15	15.1	October	26	21	58.0	November	2	14	16.1
December	10	9	44.8	December	18	3	26.9	November	25	8	9.3	December	2	4	41.2
								December	24	19	7.6	December	31	22	59.5

APOGEE, PERIGEE, AND GREATEST LIBRATION.

Apogee.		Perigee.		Greatest Libration.			
	d h		d h		d h m		d h m
January	11 17.9	January	23 18.4	January	5 10 55 W.	January	17 19 35 E.
February	8 14.3	February	20 9.6	February	1 0 36 W.	February	14 15 51 E.
March	8 6.6	March	20 17.0	February	27 9 0 W.	March	14 20 8 E.
April	4 13.4	April	18 3.9	March	27 1 2 W.	April	12 2 10 E.
May	1 15.1	May	16 13.7	April	24 5 5 W.	May	10 4 24 E.
May	29 0.1	June	13 18.1	May	22 10 48 W.	June	6 17 41 E.
June	25 16.1	July	11 6.7	June	19 13 8 W.	July	3 5 18 E.
July	23 10.2	August	5 15.1	July	17 7 25 W.	July	29 19 28 E.
August	20 5.1	September	1 2.4	August	13 10 24 W.	August	26 6 10 E.
September	16 23.8	September	29 0.9	September	8 17 23 W.	September	23 5 35 E.
October	14 14.2	October	27 10.1	October	5 16 23 W.	October	21 11 37 E.
November	10 18.9	November	24 22.9	November	2 14 32 W.	November	18 19 6 E.
December	7 20.9	December	23 10.2	November	30 21 15 W.	December	16 20 30 E.
				December	29 4 43 W.		

FORMULÆ FOR THE LIBRATION OF THE MOON.

Put I , the inclination of the moon's equator to the ecliptic ($= 1^\circ 28.8'$),

Ω , the mean longitude of the moon's ascending node, or the mean longitude of the descending node of the moon's equator,

C , the angle at the centre of the moon's disk made by a lunar meridian with the circle of declination, counted from north to east on the apparent disk,

$\lambda, \beta, \alpha', \delta'$ the apparent longitude, latitude, right ascension, and declination of the moon, corrected for parallax,

λ' , the selenocentric longitude of the earth, counted on the moon's equator from its descending node, Ω ,

$i, \Delta, \Omega', \zeta$, the quantities defined on page 284, where their values for the year are given.

The moon's libration in longitude and latitude may then be found, for any time, by means of the following formulæ, in connection with the tables given on pages 284 and 285:—

$$\left. \begin{aligned} \Delta \lambda &= -0.57' \sin 2(\Omega - \lambda) \\ a &= \sin I \cos(\Omega - \lambda) \\ \tan B &= \tan I \sin(\Omega - \lambda) \\ \lambda' &= \lambda + \Delta \lambda + a b \end{aligned} \right\} \text{See table, page 285.}$$

$$\text{The libration in latitude} = b = B - \beta$$

$$\text{The libration in longitude} = l = \lambda' - \zeta$$

$$\sin C = \sin i \frac{\cos(\lambda' + \Delta - \Omega)}{\cos \delta'} = -\sin i \frac{\cos(\alpha' - \delta')}{\cos \delta'}$$

MEAN PLACES FOR 1901. (January 0^d.0 + 0^d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.	Annual Proper Motion.	Declination.	Annual Proper Motion.
		h m s	s	" "	"
45 Piscium	6.9	0 20 35.618	+ 0.0015	+ 7 8 37.93	- 0.053
51 Piscium	5.7	0 27 17.225	+ 0.0009	6 24 31.27	+ 0.003
60 Piscium	6.2	0 42 16.348	- 0.0001	6 12 2.45	- 0.011
62 Piscium	6.0	0 43 9.194	+ 0.0061	6 45 33.94	- 0.002
100 Piscium	6.8	1 29 35.878	- 0.0023	12 3 6.72	- 0.006
B. A. C. 490	7.5	1 32 24.643	+ 0.0091	+ 11 34 22.75	- 0.044
104 Piscium	7.5	1 33 57.160	+ 0.0066	13 47 0.63	- 0.036
19 Arietis	6.2	2 7 39.223	+ 0.0059	14 48 57.78	- 0.022
27 Arietis	6.3	2 25 24.855	+ 0.0026	17 15 57.62	- 0.096
29 Arietis	6.3	2 27 28.705	- 0.0016	14 35 46.75	+ 0.029
36 Arietis	6.5	2 38 47.574	+ 0.0037	+ 17 20 42.36	- 0.038
o Arietis	5.8	2 39 5.513	- 0.0005	14 53 33.35	- 0.031
40 Arietis	6.1	2 42 59.018	+ 0.0025	17 52 17.36	- 0.037
ρ^1 Arietis	7.0	2 49 22.197	+ 0.0021	17 19 55.61	- 0.030
ρ^2 Arietis	5.8	2 50 14.604	- 0.0015	17 55 50.53	- 0.015
ρ^3 Arietis	5.5	2 50 50.751	+ 0.0190	+ 17 37 43.43	- 0.195
50 Arietis	6.8	2 54 57.349	- 0.0020	17 36 43.18	- 0.021
53 Arietis	6.3	3 1 51.129	- 0.0030	17 29 53.19	+ 0.006
54 Arietis	6.3	3 2 44.190	+ 0.0002	18 24 55.15	- 0.016
δ Arietis	4.5	3 5 57.961	+ 0.0099	19 21 8.94	- 0.003
13 Tauri	5.4	3 36 36.289	0.0000	+ 19 22 59.46	- 0.024
14 Tauri	6.4	3 38 3.690	+ 0.0081	19 21 8.49	- 0.042
B. A. C. 1143	5.8	3 38 42.409	- 0.0018	20 36 59.31	- 0.001
B. A. C. 1242	6.6	3 55 20.779	+ 0.0005	19 55 20.21	- 0.059
ω^1 Tauri	5.8	4 3 23.835	+ 0.0068	19 20 51.27	- 0.039
ω^2 Tauri	4.6	4 11 27.507	- 0.0035	+ 20 20 6.79	- 0.047
51 Tauri	5.4	4 12 31.605	+ 0.0067	21 20 14.77	- 0.037
53 Tauri	5.5	4 13 35.916	+ 0.0021	20 54 10.21	- 0.053
56 Tauri	5.4	4 13 44.939	+ 0.0016	21 32 3.39	- 0.052
κ^1 Tauri	4.6	4 19 28.012	+ 0.0064	22 4 2.81	- 0.052
κ^2 Tauri	5.5	4 19 31.162	+ 0.0087	+ 21 58 24.95	- 0.056
B. A. C. 1373	5.7	4 22 8.189	+ 0.0082	21 23 56.91	- 0.067
W. B. 4 ^h , 650	5.8	4 32 25.0 . .	.....	20 29 9.7 .	.....
B. A. C. 1468	6.3	4 40 29.946	+ 0.0043	18 33 20.49	- 0.090
ϵ Tauri	4.7	4 57 10.638	+ 0.0044	21 26 54.79	- 0.052
ζ Tauri	5.4	5 1 56.836	- 0.0035	+ 20 17 16.96	- 0.034
105 Tauri	5.8	5 2 0.158	- 0.0005	21 34 25.75	- 0.019
107 Tauri	6.5	5 2 59.792	- 0.0003	19 43 53.19	- 0.007
108 Tauri	6.3	5 9 30.575	- 0.0015	22 10 19.07	- 0.008
η Tauri	5.2	5 13 19.703	+ 0.0016	21 59 39.25	- 0.083
θ Tauri	4.8	5 21 41.328	+ 0.0006	+ 21 51 8.97	- 0.013
ζ Tauri	3.0	5 31 43.698	+ 0.0002	21 4 55.56	- 0.039
B. A. C. 1796	7.5	5 36 39.191	+ 0.0005	18 56 18.69	- 0.085
127 Tauri	6.3	5 37 4.126	- 0.0020	18 55 54.73	- 0.042
B. A. C. 1867	7.2	5 47 26.054	+ 0.0009	+ 20 16 29.90	- 0.094

MEAN PLACES FOR 1901. (January $0^{\text{d}}.0 + 0^{\text{d}}.342$, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Proper Motion.	Declination.			Annual Proper Motion.
		h	m	s		"	"	"	
χ^1 Orionis	4.6	5	48	31.189	-0.0135	+ 20	15	27.68	-0.102
χ^2 Orionis	5.8	5	49	4.989	-0.0007	19	43	49.50	-0.014
χ^3 Orionis	5.1	5	57	35.549	-0.0034	19	41	32.32	-0.025
χ^4 Orionis	4.8	5	58	2.329	-0.0018	20	8	27.07	-0.008
68 Orionis	5.6	6	6	9.610	+0.0025	19	48	44.97	-0.026
71 Orionis	5.1	6	9	1.350	-0.0081	+ 19	11	23.60	-0.022
14 Geminorum	7.2	6	19	46.221	-0.0019	21	41	59.16	-0.027
15 Geminorum (2^{d} star)	7.0	6	21	52.556	-0.0030	20	51	1.56	-0.047
16 Geminorum	6.8	6	22	3.403	-0.0025	20	33	20.98	-0.005
22 Geminorum	7.2	6	28	48.689	-0.0016	19	30	19.86	-0.002
26 Geminorum	5.0	6	36	38.457	+0.0001	+ 17	44	31.26	-0.101
λ Geminorum	3.6	7	12	24.290	-0.0030	16	43	8.22	-0.052
W. B. 7^{h} , 685	6.2	7	26	6.0 . .	. . . .	17	17	55.3 .	. . . .
67 Geminorum	7.5	7	27	45.853	-0.0044	15	51	5.79	-0.013
68 Geminorum	5.0	7	27	57.577	-0.0007	16	2	19.39	-0.026
f Geminorum	5.2	7	33	45.542	-0.0011	+ 17	54	0.60	+0.006
1 Cancri	5.9	7	51	22.283	-0.0021	16	3	17.52	-0.048
3 Cancri	6.0	7	55	6.975	-0.0014	17	34	47.65	-0.023
5 Cancri	6.3	7	55	51.858	+0.0010	16	43	41.50	-0.016
27 Cancri	5.6	8	21	15.478	-0.0020	12	58	53.05	-0.105
29 Cancri	5.9	8	23	5.892	-0.0021	+ 14	32	18.77	-0.025
A^1 Cancri	5.6	8	37	45.068	-0.0003	13	2	9.18	-0.006
A^2 Cancri	5.8	8	41	30.463	-0.0055	12	28	24.35	-0.053
60 Cancri	5.7	8	50	31.298	-0.0008	12	0	15.80	-0.018
α Cancri	4.3	8	53	4.418	+0.0019	12	14	27.50	-0.041
ω Leonis	5.6	9	23	9.404	+0.0035	+ 9	29	16.77	-0.006
3 Leonis	6.0	9	23	12.890	-0.0034	8	37	13.94	-0.016
h Leonis	5.4	9	26	39.287	+0.0006	10	9	8.70	-0.012
14 Sextantis	6.6	10	1	36.822	-0.0036	6	5	39.79	-0.005
16 Sextantis	6.9	10	4	3.708	+0.0006	6	39	22.03	-0.013
19 Sextantis	6.0	10	7	39.278	-0.0050	+ 5	6	14.23	-0.001
34 Sextantis	6.7	10	37	30.753	-0.0069	4	6	0.86	+0.016
36 Sextantis	6.6	10	40	3.404	-0.0041	3	0	31.39	-0.016
55 Leonis	6.0	10	50	36.819	+0.0065	1	15	52.58	-0.014
57 Leonis	6.9	10	51	5.944	+0.0011	0	57	39.29	-0.022
p^2 Leonis	5.0	10	58	32.473	-0.0059	+ 0	31	55.48	-0.013
p^5 Leonis	5.5	11	8	41.554	-0.0026	+ 0	28	8.35	-0.012
e Leonis	5.0	11	25	15.371	+0.0009	- 2	27	26.14	-0.013
B. A. C. 4006	5.7	11	45	58.712	+0.0029	4	46	59.09	-0.022
χ Virginis	4.7	12	34	8.112	-0.0058	7	27	3.80	-0.043
28 Virginis	7.0	12	36	50.451	+0.0003	- 6	57	20.82	-0.041
ψ Virginis	5.0	12	49	12.174	-0.0026	9	0	5.53	-0.034
g Virginis	5.2	13	2	42.552	+0.0005	10	12	39.81	-0.013
B. A. C. 4394	5.9	13	3	22.8 . .	. . . .	8	27	12.97	-0.034
50 Virginis	6.3	13	4	34.386	+0.0007	- 9	48	4.55	-0.013

MEAN PLACES FOR 1901. (January 0^d.0 + 0^d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Proper Motion.	Declination.			Annual Proper Motion.
		h	m	s		°	'	"	
56 Virginis	7.0	13	9	33.679	-0.0026	-9	50	42.91	-0.062
58 Virginis	7.0	13	12	15.993	-0.0055	10	1	28.60	+0.013
62 Virginis	7.0	13	15	7.907	-0.0100	10	47	3.30	-0.020
<i>a</i> Virginis	1.2	13	19	58.564	-0.0036	10	38	41.15	-0.038
<i>i</i> Virginis	5.5	13	21	29.261	-0.0099	12	11	34.51	-0.041
86 Virginis	6.0	13	40	39.689	-0.0023	-11	55	50.27	-0.001
B. A. C. 4700	5.2	14	5	26.086	+0.0028	15	50	3.86	-0.009
5 Libræ	6.6	14	40	30.201	-0.0024	15	2	32.67	-0.009
<i>a</i> ¹ Libræ	5.3	14	45	12.466	-0.0093	15	35	9.06	-0.081
B. A. C. 4896	6.6	14	46	2.532	-0.0040	17	22	41.92	-0.114
10 Libræ	6.5	14	46	17.874	-0.0040	-17	56	51.27	-0.008
<i>v</i> ¹ Libræ	5.4	15	1	6.162	-0.0043	15	52	23.98	-0.046
<i>v</i> ² Libræ	6.9	15	1	17.317	-0.0064	16	6	4.33	-0.029
<i>t</i> ¹ Libræ	4.9	15	6	34.558	-0.0041	19	25	2.08	-0.050
<i>t</i> ² Libræ	6.5	15	7	40.712	-0.0043	19	16	28.71	-0.034
26 Libræ	6.5	15	8	58.493	-0.0022	-17	23	56.59	-0.027
28 Libræ	6.0	15	15	16.821	-0.0013	17	47	58.67	-0.089
<i>z</i> ² Libræ	7.0	15	23	58.588	-0.0065	17	5	57.84	-0.001
B. A. C. 5109	5.4	15	26	55.466	-0.0015	19	19	59.54	-0.027
41 Libræ	5.7	15	33	12.513	+0.0062	18	58	33.19	-0.074
<i>κ</i> Libræ	5.0	15	36	14.415	-0.0044	-19	21	29.04	-0.114
<i>λ</i> Libræ	5.0	15	47	35.088	-0.0023	19	52	16.82	-0.036
47 Libræ	6.4	15	49	16.907	-0.0025	19	5	26.58	-0.034
<i>ω</i> ¹ Scorpii	4.1	16	1	0.877	-0.0018	20	24	4.96	-0.040
<i>ω</i> ² Scorpii	4.6	16	1	35.886	+0.0020	20	36	6.02	-0.067
<i>ν</i> Scorpii	4.2	16	6	14.364	-0.0023	-19	12	13.31	-0.042
B. A. C. 5395	7.0	16	7	51.171	-0.0083	21	8	49.35	+0.029
<i>φ</i> Ophiuchi	4.6	16	18	18.565	-0.0016	19	48	21.85	-0.075
<i>χ</i> Ophiuchi	5.0	16	21	17.049	-0.0019	18	13	55.47	-0.043
<i>ω</i> Ophiuchi	4.7	16	26	16.040	+0.0010	21	15	17.04	+0.028
B. A. C. 5580	5.7	16	36	4.445	-0.0002	-19	44	5.99	+0.028
29 Ophiuchi	6.8	16	56	3.665	-0.0048	18	44	23.67	-0.012
B. A. C. 5758	6.6	17	0	17.045	-0.0041	21	25	40.04	-0.107
<i>ξ</i> Ophiuchi	4.5	17	15	4.261	+0.0167	21	0	23.07	-0.191
52 Ophiuchi	6.5	17	29	21.086	-0.0022	21	58	39.45	-0.050
B. A. C. 5954	6.8	17	32	47.962	-0.0031	-21	51	16.40	-0.045
58 Ophiuchi	5.0	17	37	29.896	-0.0064	21	38	7.15	-0.063
B. A. C. 6098	6.0	17	56	42.862	-0.0030	20	44	13.43	-0.031
14 Sagittarii	5.9	18	8	18.825	-0.0038	21	44	22.55	-0.034
15 Sagittarii	5.6	18	9	18.532	-0.0005	20	45	28.25	-0.004
16 Sagittarii	6.2	18	9	19.536	-0.0010	-20	25	3.97	-0.025
17 Sagittarii	7.0	18	10	41.398	-0.0029	20	34	38.09	-0.030
21 Sagittarii	4.9	18	19	27.254	-0.0008	20	35	40.85	-0.023
B. A. C. 6287	5.7	18	24	22.4..	.....	18	47	30.23	-0.096
B. A. C. 6294	5.2	18	25	38.367	+0.0001	-18	28	15.96	-0.061

MEAN PLACES FOR 1901. (January 0^d.0 + 0^d.342, Washington.)

Name of Star.	Magni- tude.	Right Ascension.	Annual Proper Motion.	Declination.	Annual Proper Motion.
		h m s	s	° ' "	"
B. A. C. 6386	7.3	18 41 59.951	- 0.0008	- 20 22 55.91	- 0.034
29 Sagittarii	5.5	18 43 47.637	- 0.0008	20 26 15.03	+ 0.014
Lalande 35497	6.4	18 57 14.6 . .	.....	19 23 20.5 .	.....
B. A. C. 6536	5.5	19 2 27.680	- 0.0011	19 26 43.7 .	.....
d Sagittarii	4.9	19 11 50.557	- 0.0023	19 7 45.43	- 0.017
ρ^1 Sagittarii	3.9	19 15 55.899	- 0.0026	- 18 2 2.39	- 0.005
ρ^2 Sagittarii	6.1	19 16 4.515	+ 0.0071	18 29 30.80	- 0.091
B. A. C. 6658	7.3	19 22 19.7 . .	.....	18 33 32.97	+ 0.025
B. A. C. 6710	6.0	19 31 18.815	+ 0.0022	18 27 6.36	- 0.056
ϵ^1 Sagittarii	5.6	19 35 3.115	+ 0.0042	16 31 13.79	- 0.054
ϵ^2 Sagittarii	5.0	19 36 51.421	+ 0.0041	- 16 21 22.16	- 0.020
B. A. C. 6746	5.5	19 37 54.790	+ 0.0102	15 42 0.46	- 0.206
γ Sagittarii	5.0	19 52 20.134	- 0.0004	15 45 15.10	- 0.089
B. A. C. 6992	6.2	20 15 12.839	+ 0.0012	15 5 49.89	- 0.004
β Capricorni	3.4	20 15 26.980	+ 0.0019	15 5 39.13	- 0.003
B. A. C. 7087	6.2	20 28 40.662	- 0.0002	- 14 3 41.03	+ 0.052
8 Aquarii	6.8	20 54 28.432	- 0.0030	13 26 13.49	- 0.012
ν Aquarii	4.6	21 4 12.123	+ 0.0055	11 46 21.56	- 0.016
14 Aquarii	6.9	21 10 58.919	- 0.0012	9 37 38.83	- 0.013
B. A. C. 7408	6.9	21 16 39.809	0.0000	9 44 54.2 .	.....
17 Aquarii	6.4	21 17 37.756	- 0.0041	- 9 44 29.10	- 0.030
19 Aquarii	5.7	21 19 53.806	- 0.0008	10 10 12.34	- 0.170
B. A. C. 7562	5.5	21 39 38.580	+ 0.0047	9 29 30.67	0.000
ϵ^1 Capricorni	5.2	21 39 43.543	- 0.0005	9 32 14.15	- 0.005
ϵ^2 Capricorni	6.2	21 40 59.348	- 0.0008	9 43 59.23	- 0.007
30 Aquarii	5.6	21 58 4.003	+ 0.0015	- 7 0 3.53	+ 0.001
B. A. C. 7690	7.0	22 0 53.376	+ 0.0041	5 50 12.2 .	.....
B. A. C. 7704	7.3	22 2 30.280	- 0.0022	6 18 45.2 .	.....
B. A. C. 7744	6.3	22 7 34.596	- 0.0038	5 12 31.77	- 0.026
B. A. C. 7752	6.7	22 8 42.558	+ 0.0072	4 56 31.5 .	.....
44 Aquarii	5.9	22 11 56.374	- 0.0014	- 5 52 53.33	+ 0.031
51 Aquarii	5.8	22 18 57.501	+ 0.0012	5 20 17.55	- 0.020
κ Aquarii	5.5	22 32 37.826	- 0.0051	4 44 19.55	- 0.122
Lalande 44337	6.3	22 35 40.2 . .	.....	4 4 4.6 .	.....
3 Piscium	6.5	22 55 33.051	- 0.0031	- 0 20 43.24	+ 0.021
κ Piscium	5.0	23 21 51.418	+ 0.0046	+ 0 42 48.01	- 0.111
9 Piscium	6.6	23 22 10.557	+ 0.0032	0 34 41.92	- 0.051
15 Piscium	6.6	23 30 24.719	- 0.0077	0 45 57.74	- 0.041
16 Piscium	5.6	23 31 20.157	- 0.0080	1 33 9.99	+ 0.056
λ Piscium	4.7	23 36 59.684	- 0.0098	1 14 5.91	- 0.172
19 Piscium	5.2	23 41 19.932	- 0.0039	+ 2 56 14.87	- 0.032
22 Piscium	5.9	23 46 53.669	- 0.0008	2 22 47.89	- 0.020
25 Piscium	6.3	23 48 0.511	+ 0.0001	+ 1 32 23.61	- 0.015

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JANUARY.

THE STAR'S				AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N S.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m				
B. A. C. 1242	6.6	+2.23	+ 1.9	+19 55.4	1 4 27.4	- 4 44.6	+0.4809	0.5937	+0.0697	+70 + 5
ω^2 Tauri	4.6	2.29	1.1	20 20.1	10 54.7	+ 1 27.6	+0.4642	0.5947	0.0550	+68 + 5
51 Tauri	5.4	2.32	1.2	21 20.3	11 20.3	+ 1 52.3	-0.5325	0.5948	0.0540	+ 7 -53
53 Tauri	5.5	2.32	1.1	20 54.2	11 46.0	+ 2 16.9	-0.0671	0.5949	0.0530	+33 -23
56 Tauri	5.4	2.33	1.2	21 32.1	11 49.6	+ 2 20.4	-0.7068	0.5949	0.0528	- 4 -67
κ^1 Tauri	4.6	+2.36	+ 0.9	+22 4.1	14 6.8	+ 4 32.2	-1.1352	0.5952	+0.0476	-37 -68
κ^2 Tauri	5.5	2.36	0.9	21 58.4	14 8.0	+ 4 33.4	-1.0386	0.5952	0.0475	-27 -68
B. A. C. 1373	5.7	2.36	+ 0.6	21 24.0	15 10.7	+ 5 33.7	-0.4053	0.5953	0.0451	+14 -43
W. B. iv ^b 650	5.8	2.38	- 0.2	20 29.2	19 17.0	+ 9 30.4	+0.6908	0.5956	0.0355	+90 +19
ι Tauri	4.7	2.47	1.5	21 26.9	2 5 10.2	- 4 59.6	-0.0550	0.5955	0.0121	+34 -19
ι Tauri	5.4	+2.46	- 2.0	+20 17.2	7 4.5	- 3 9.6	+1.1507	0.5953	+0.0076	+90 +55
105 Tauri	5.8	2.48	1.8	21 34.4	7 5.9	- 3 8.3	-0.1640	0.5953	0.0075	+28 -25
108 Tauri	6.3	2.51	2.2	22 10.3	10 6.1	- 0 15.1	-0.7643	0.5950	+0.0004	- 7 -68
ν Tauri	5.2	2.52	2.4	21 59.6	11 37.9	+ 1 13.1	-0.5845	0.5946	-0.0032	+ 4 -53
σ Tauri	4.8	2.53	2.9	21 51.1	14 59.1	+ 4 26.5	-0.4637	0.5941	0.0110	+11 -44
ζ Tauri	3.0	+2.53	- 3.7	+21 4.9	19 1.3	+ 8 19.3	+0.2620	0.5916	-0.0204	+53 - 3
B. A. C. 1867	7.2	2.54	4.7	20 16.4	3 1 22.1	- 9 34.6	+0.9167	0.5915	0.0351	+90 +34
NEPTUNE				22 10.7	1 58.1	- 9 0.5	-1.0635	0.5924	0.0365	-29 -68
χ^1 Orionis	4.6	2.54	4.8	20 15.4	1 48.5	- 9 9.2	+0.9189	0.5913	0.0362	+90 +34
χ^4 Orionis	5.0	2.55	5.3	20 8.4	5 40.7	- 5 25.9	+0.8836	0.5900	0.0449	+90 +31
68 Orionis	5.6	+2.56	- 5.8	+19 48.7	8 59.7	- 2 14.5	+1.0622	0.5888	-0.0525	+90 +43
14 Geminorum	7.2	2.59	6.5	21 41.9	14 35.2	+ 3 8.3	-1.2128	0.5864	0.0645	-46 -68
15 Gemi. (2 ^d star)	7.0	2.58	6.7	20 50.9	15 27.3	+ 3 58.4	-0.3919	0.5860	0.0663	+15 -44
16 Geminorum	6.8	2.58	6.7	20 33.2	15 31.8	+ 4 2.8	-0.0923	0.5860	0.0665	+32 -26
ν Geminorum	4.0	2.57	6.7	20 16.4	15 57.2	+ 4 27.2	+0.1698	0.5854	0.0674	+47 -12
22 Geminorum	7.2	+2.56	- 6.9	+19 30.2	18 19.6	+ 6 44.3	+0.8003	0.5847	-0.0724	+90 +23
W. B. 7 ^h 685	6.2	2.50	9.9	17 17.8	4 18 39.2	+ 6 10.6	+0.7587	0.5707	0.1189	+90 +16
f Geminorum	5.2	2.50	10.3	17 53.8	22 0.0	+ 9 24.2	-0.2775	0.5687	0.1245	+22 -43
1 Cancri	5.9	2.45	11.0	16 3.1	5 5 47.8	- 7 4.2	+0.6398	0.5636	0.1360	+84 + 7
3 Cancri	6.0	2.46	11.3	17 34.6	7 28.4	- 5 27.1	-1.1953	0.5624	0.1394	-40 -72
5 Cancri	6.3	+2.45	-11.3	+16 43.5	7 48.5	- 5 7.7	-0.3464	0.5622	-0.1398	+18 -49
29 Cancri	5.9	2.37	12.0	14 32.1	20 12.5	+ 6 51.1	+0.1234	0.5539	0.1566	+44 -24
A ¹ Cancri	5.6	2.32	12.3	13 1.9	6 3 2.0	-10 33.0	+0.6214	0.5494	0.1645	+81 + 2
A ² Cancri	5.8	2.30	12.3	12 28.2	4 48.1	- 8 50.3	+0.9268	0.5482	0.1665	+90 +20
60 Cancri	5.7	2.27	12.5	12 0.1	9 44.4	- 4 42.3	+0.7069	0.5455	0.1709	+90 + 6
α Cancri	4.3	+2.27	-12.6	+12 14.2	10 17.3	- 3 31.8	+0.2469	0.5448	-0.1721	+52 -19
κ Cancri	5.0	2.23	12.6	11 3.8	14 45.5	+ 0 47.8	+0.7209	0.5420	0.1763	+90 + 6
ω Leonis	5.6	2.16	12.7	9 29.1	7 0 53.1	+10 36.3	+0.5867	0.5359	0.1844	+77 - 3
h Leonis	5.4	2.15	12.9	10 8.9	2 36.8	-11 43.2	-0.4462	0.5348	0.1857	+13 -61
14 Sextantis	6.6	2.01	12.6	6 5.5	20 11.9	+ 5 19.9	+0.5718	0.5258	0.1953	+75 - 5
16 Sextantis	6.9	+2.00	-12.5	+ 6 39.2	21 27.1	+ 6 32.8	-0.2814	0.5252	-0.1958	+22 -52
19 Sextantis	6.0	1.99	12.1	5 6.0	23 17.8	+ 8 20.2	+1.0381	0.5244	0.1965	+90 +24
34 Sextantis	6.6	1.86	11.9	4 5.8	8 14 48.5	- 0 36.4	-0.9541	0.5184	0.2005	-17 -86
36 Sextantis	6.6	1.85	11.5	3 0.3	16 8.6	+ 0 41.4	-0.0319	0.5179	0.2007	+35 -39
55 Leonis	6.0	1.81	11.0	1 15.7	21 42.6	+ 6 5.8	+0.7543	0.5163	0.2012	+90 + 4
57 Leonis	6.9	+1.81	-10.9	+ 0 57.5	21 58.1	+ 6 20.8	+1.0343	0.5162	-0.2012	+90 +22
β^2 Leonis	6.2	1.77	10.7	0 31.7	9 1 54.7	+10 10.7	+0.7108	0.5152	0.2013	+90 + 1
β^3 Leonis	5.5	1.73	10.6	+ 0 28.0	7 18.8	- 8 34.5	-0.3067	0.5140	0.2011	+20 -55
ϵ Leonis	5.0	1.67	9.5	- 2 27.6	16 10.1	+ 0 1.7	+1.1293	0.5125	0.2000	+88 +30
χ Virginis	4.7	1.37	6.4	7 27.2	11 5 7.8	+11 56.5	-0.5363	0.5131	0.1857	+ 6 -72
ψ Virginis	5.0	+1.30	- 5.5	- 9 0.2	13 8.9	- 4 16.1	-0.2891	0.5146	-0.1805	+19 -54
δ Virginis	5.2	1.25	4.7	10 12.7	20 17.4	+ 2 40.0	-0.2225	0.5163	0.1753	+23 -50
50 Virginis	6.3	1.24	4.8	9 48.2	21 16.3	+ 3 37.2	-0.8476	0.5165	0.1745	+13 -90
56 Virginis	7.0	1.21	4.6	9 50.8	23 53.6	+ 6 9.9	-1.2537	0.5173	0.1724	-47 -90
58 Virginis	7.0	1.20	4.5	10 1.6	12 1 18.7	+20 44.9	-1.2989	0.5177	0.1712	-54 -90
62 Virginis	7.0	+1.18	- 4.1	-10 47.1	3 51.5	+10 1.0	-0.8917	0.5184	-0.1691	-17 -90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JANUARY.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'n's from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$								
		s	"	°	d h m	h m				°	"
α Virginis	1.2	+1.17	-4.1	-10 38.8	12 5 20.6	+11 27.5	-1.2960	0.5189	-0.1678	-55	-90
ϵ Virginis	5.5	1.17	4.1	12 11.6	6 7.9	-11 46.6	+0.2841	0.5192	0.1670	+49	-21
B. A. C. 4700	5.2	0.97	-0.9	15 50.1	4 40.1	+10 5.4	+0.7860	0.5280	0.1441	+74	+7
B. A. C. 4896	6.6	0.78	+0.6	17 22.7	14 0 46.7	+5 34.7	-0.1639	0.5377	0.1183	+18	-47
10 Libræ	6.5	0.79	0.8	17 56.8	0 54.1	+5 41.8	+0.4460	0.5378	0.1181	+53	-13
ϵ^1 Libræ	4.7	+0.70	+1.8	-19 25.0	10 40.4	-8 50.5	+0.9683	0.5429	-0.1038	+71	+21
ϵ^2 Libræ	6.5	0.70	1.9	19 16.4	11 12.0	-8 20.0	+0.7578	0.5432	0.1029	+71	+6
28 Libræ	6.0	0.65	1.5	17 48.0	14 48.8	-4 50.2	-1.2155	0.5440	0.0973	-54	-90
B. A. C. 5109	5.4	0.60	2.2	19 20.0	20 18.1	+0 28.4	-0.0514	0.5480	0.0884	+21	-40
41 Libræ	5.7	0.57	2.3	18 58.5	23 14.5	+3 19.0	-0.6931	0.5495	0.0836	-15	-90
κ Libræ	5.0	+0.56	+2.5	-19 21.4	15 0 39.2	+4 40.9	-0.3933	0.5502	-0.0812	+2	-63
λ Libræ	5.0	0.51	2.8	19 52.2	5 54.4	+9 45.6	-0.2376	0.5530	0.0721	+9	-52
47 Libræ	6.4	0.50	2.6	19 5.4	6 41.3	+10 30.9	-1.1407	0.5534	0.0707	-48	-90
β^1 Scorpii	2.7	0.45	2.9	19 32.0	11 27.2	-8 52.8	-0.9737	0.5558	0.0622	-35	-90
ω^1 Scorpii	4.1	0.45	3.3	20 24.0	12 3.8	-8 17.4	-0.0729	0.5562	0.0611	+17	-41
ω^2 Scorpii	4.6	+0.45	+3.3	-20 36.0	12 19.7	-8 2.1	+0.1277	0.5563	-0.0606	+28	-30
B. A. C. 5395	7.0	0.43	3.6	21 8.8	15 10.3	-5 17.3	+0.5523	0.5576	0.0554	+55	-6
ψ Ophiuchi	4.6	0.38	3.4	19 48.3	19 53.8	-0 43.7	-1.1364	0.5599	0.0465	-50	-90
ω Ophiuchi	4.7	0.35	3.9	21 15.2	23 28.1	+2 43.5	+0.2723	0.5616	0.0396	+34	-22
B. A. C. 5758	6.6	0.23	4.3	21 25.6	16 14 31.7	-6 44.4	+0.0840	0.5679	-0.0096	+20	-32
ξ Ophiuchi	4.5	+0.16	+4.4	-21 0.3	20 59.0	-0 30.9	-0.3843	0.5701	+0.0037	-6	-62
52 Ophiuchi	6.5	0.11	4.8	21 58.6	17 3 10.5	+5 27.3	+0.7112	0.5721	0.0167	+66	+4
B. A. C. 5954	6.8	0.10	4.7	21 51.2	4 39.9	+6 53.6	+0.6074	0.5725	0.0198	+56	-3
58 Ophiuchi	5.0	0.08	4.7	21 38.0	6 41.5	+8 50.8	+0.4186	0.5730	0.0240	+42	-13
B. A. C. 6098	6.0	+0.02	4.7	20 44.1	14 56.9	-7 11.6	-0.2608	0.5749	0.0416	+5	-53
μ Sagittarii	4.0	0.00	+4.7	-21 5.0	19 42.6	-2 36.3	+0.3275	0.5757	+0.0316	+39	-19
14 Sagittarii	5.9	0.00	4.8	21 44.3	19 54.7	-2 24.6	+1.0269	0.5758	0.0520	+68	+26
15 Sagittarii	5.6	-0.01	4.7	20 45.4	20 20.2	-2 0.1	+0.0159	0.5758	0.0529	+20	-36
16 Sagittarii	6.2	0.01	4.6	20 25.0	20 20.7	-1 59.6	-0.3415	0.5758	0.0529	+1	-59
17 Sagittarii	7.0	0.01	4.7	20 34.6	20 55.6	-1 26.0	-0.1425	0.5759	0.0541	+12	-46
21 Sagittarii	4.9	-0.03	+4.7	-20 35.6	18 0 40.1	+2 10.3	+0.0932	0.5763	+0.0620	+26	-31
NEW MOON.											
B. A. C. 7690	7.0	+0.01	3.7	5 50.1	22 0 24.3	-1 31.1	-0.9405	0.5644	0.2084	-18	-90
B. A. C. 7704	7.3	0.01	3.7	6 18.7	1 7.4	-0 49.5	-0.3094	0.5643	0.2089	+19	-55
B. A. C. 7744	6.3	+0.03	+3.8	-5 12.5	3 22.9	+1 21.3	-0.9514	0.5640	+0.2104	-17	-90
B. A. C. 7752	6.7	0.04	3.8	4 50.4	3 53.1	+1 50.4	-1.1165	0.5639	0.2107	-17	-90
44 Aquarii	5.9	0.04	3.6	5 52.8	5 19.5	+3 13.9	+0.1383	0.5637	0.2115	+44	-29
51 Aquarii	5.8	0.07	3.6	5 20.2	8 27.5	+6 15.3	+0.2550	0.5632	0.2132	+51	-23
κ Aquarii	5.5	0.11	3.7	4 44.3	14 34.1	-11 50.7	+0.9604	0.5625	0.2158	+85	+17
Lalande 44337	6.3	+0.12	+3.7	-4 4.0	15 55.7	-10 32.0	+0.5774	0.5622	+0.2163	+75	-6
3 Piscium	6.5	0.20	3.8	-0 20.7	23 0 50.3	-1 55.9	-1.2375	0.5617	0.2185	-40	-90
κ Piscium	5.0	0.31	4.2	+0 42.9	12 38.3	+9 27.8	+0.2804	0.5614	0.2187	+53	-22
9 Piscium	6.6	0.31	4.1	0 34.8	12 46.9	+9 36.1	+0.4456	0.5614	0.2181	+65	-13
15 Piscium	6.6	0.35	4.0	0 46.0	16 28.3	-10 50.1	+1.0623	0.5614	0.2181	+90	+25
16 Piscium	5.6	+0.36	+4.2	+1 33.2	16 53.4	-10 25.8	+0.3610	0.5614	+0.2180	+59	-17
λ Piscium	4.7	0.38	4.0	1 14.2	19 25.5	-7 59.0	+1.2331	0.5615	0.2174	+90	+40
19 Piscium	5.2	0.40	4.4	2 50.3	21 22.1	-6 6.4	-0.0598	0.5617	0.2169	+33	-40
22 Piscium	5.9	0.43	4.1	2 22.9	23 51.5	-3 42.2	+1.0410	0.5619	0.2160	+90	+23
45 Piscium	6.9	0.62	4.8	7 8.7	24 14 53.2	+10 48.3	-0.5635	0.5636	0.2084	+7	-72
51 Piscium	5.7	+0.65	+4.5	+6 24.6	17 51.5	-10 19.6	+0.7940	0.5641	+0.2063	+90	+8
100 Piscium	6.8	1.03	4.7	12 3.2	25 21 11.0	-7 57.9	+0.3944	0.5704	0.1789	+61	-11
π Piscium	5.6	1.04	4.5	11 38.2	22 9.5	-7 1.5	+0.9897	0.5706	0.1776	+90	+25
B. A. C. 490	7.5	1.05	4.5	11 34.5	22 24.1	-6 47.4	+1.0960	0.5707	0.1773	+90	+33
104 Piscium	7.5	1.07	5.2	13 47.1	23 4.1	-6 8.9	-1.0221	0.5709	0.1764	-23	-77
19 Arietis	6.2	+1.28	+4.4	+14 49.0	26 13 31.6	+7 47.3	+0.3346	0.5752	+0.1556	+58	-12

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JANUARY.

THE STAR'S				AT CONJUNCTION IN R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S.</i>
		$\Delta\alpha$	$\Delta\delta$								
		<i>s</i>	<i>"</i>	<i>°</i>	<i>d h m</i>	<i>h m</i>				<i>°</i>	<i>°</i>
27 Arietis	6.4	+1.41	+ 4.6	+17 16.0	26 21 3.5	- 8 57.2	-1.0300	0.5772	+0.1432	-25	-73
36 Arietis	6.5	1.51	4.1	17 20.8	27 2 41.7	- 3 31.6	-0.3284	0.5791	0.1334	+19	-46
40 Arietis	6.1	1.54	4.0	17 52.4	4 27.2	- 1 50.0	-0.6332	0.5797	0.1295	+ 1	-68
ρ^1 Arietis	7.0	1.57	3.6	17 20.0	7 7.7	+ 0 44.6	+0.2579	0.5803	0.1253	+53	-13
ρ^2 Arietis	5.8	1.58	3.8	17 55.9	7 29.6	+ 1 5.7	+0.3041	0.5804	0.1247	+20	-44
ρ^3 Arietis	5.5	+1.58	+ 3.6	+17 37.8	7 44.8	+ 1 30.4	+0.0329	0.5805	+0.1242	+39	-25
50 Arietis	6.8	1.60	3.4	17 36.8	9 27.7	+ 2 59.4	+0.2603	0.5809	0.1211	+55	-13
53 Arietis	6.3	1.64	3.1	17 29.9	12 20.2	+ 5 45.4	+0.7169	0.5817	0.1155	+77	+14
54 Arietis	6.3	1.66	3.4	18 25.0	12 42.3	+ 6 6.8	-0.1762	0.5818	0.1150	+27	-36
δ Arietis	4.5	1.69	3.6	19 21.2	14 3.0	+ 7 24.4	-0.9798	0.5821	0.1122	-21	-71
13 Tauri	5.4	+1.87	+ 2.1	+19 23.0	28 2 43.7	- 4 23.4	+0.2496	0.5849	+0.0865	+52	-10
14 Tauri	6.4	1.87	2.0	19 21.2	3 19.7	- 3 48.8	+0.3328	0.5851	0.0852	+58	- 5
B. A. C. 1143	5.8	1.90	2.4	20 37.0	3 35.6	- 3 33.4	-0.9388	0.5851	0.0845	-19	-69
B. A. C. 1242	6.6	1.98	1.3	19 55.4	10 26.0	+ 3 1.5	+0.3016	0.5862	0.0701	+56	- 5
ω^1 Tauri	5.8	2.02	0.7	19 20.9	13 44.1	+ 6 12.0	+1.1114	0.5866	0.0629	+90	+46
ω^2 Tauri	4.6	+2.08	+ 0.6	+20 20.1	17 2.3	+ 9 22.7	+0.2937	0.5870	+0.0556	+55	- 4
51 Tauri	5.4	2.10	0.8	21 20.3	17 28.6	+ 9 48.1	-0.7119	0.5870	0.0546	- 4	-68
53 Tauri	5.5	2.10	0.6	20 54.2	17 54.9	+10 13.3	-0.2416	0.5870	0.0537	+23	-33
56 Tauri	5.4	2.11	0.8	21 32.1	17 58.6	+10 17.0	-0.8872	0.5870	0.0535	-15	-68
B. A. C. 1373	5.7	2.15	+ 0.3	21 24.0	21 24.6	-10 24.9	-0.5781	0.5872	0.0459	+ 4	-56
W. B. 4 ^b 650	5.8	+2.19	- 0.5	+20 29.2	29 1 37.0	- 6 22.1	+0.5350	0.5873	+0.0365	+75	+11
ϵ Tauri	4.7	2.32	1.7	21 26.9	11 45.3	+ 3 23.0	-0.2031	0.5870	0.0135	+25	-28
ζ Tauri	5.4	2.32	2.3	20 17.2	13 42.6	+ 5 16.0	+1.0183	0.5869	0.0091	+90	+44
105 Tauri	5.8	2.34	1.9	21 34.4	13 44.0	+ 5 17.3	-0.3101	0.5869	0.0091	+19	-34
108 Tauri	6.3	2.39	2.2	22 10.3	16 49.0	+ 8 15.3	-0.9118	0.5866	+0.0021	-17	-68
η Tauri	5.2	+2.40	- 2.5	+21 59.6	18 23.0	+ 9 45.7	-0.7277	0.5864	-0.0014	- 5	-68
θ Tauri	4.8	2.43	3.0	21 51.1	21 49.4	-10 55.7	-0.5998	0.5858	0.0092	+ 3	-55
ζ Tauri	3.0	2.46	3.8	21 4.9	30 1 58.0	- 6 56.5	+0.1415	0.5851	0.0184	+46	- 9
NEPTUNE				22 10.7	7 55.8	- 1 12.2	-1.1476	0.5846	0.0316	-39	-68
B. A. C. 1867	7.2	2.51	5.0	20 16.4	8 28.3	- 0 40.8	+0.8140	0.5835	0.0328	+90	+28
χ^1 Orionis	4.6	+2.51	- 4.9	+20 15.4	8 55.4	- 0 14.7	+0.8170	0.5834	-0.0338	+90	+28
χ^3 Orionis	5.1	2.53	5.7	19 41.4	12 42.1	+ 3 23.5	+1.2633	0.5824	0.0420	+90	+67
χ^4 Orionis	4.8	2.54	5.6	20 8.4	12 53.3	+ 3 34.3	+0.7887	0.5823	0.0424	+90	+25
68 Orionis	5.6	2.56	6.1	19 48.6	16 17.1	+ 6 50.5	+0.9751	0.5813	0.0497	+90	+37
15 Gemi. (2 ^d star)	7.0	2.63	6.8	20 50.9	22 53.9	-10 47.3	-0.4810	0.5789	0.0635	+10	-50
16 Geminorum	6.8	+2.62	- 6.9	+20 33.2	22 58.5	-10 42.9	-0.1783	0.5789	-0.0637	+27	-31
ν Geminorum	4.0	2.62	7.0	20 16.4	23 24.6	-10 17.8	+0.0873	0.5787	0.0645	+42	-16
22 Geminorum	7.2	+2.62	- 7.4	+19 30.2	31 1 50.1	- 7 57.5	+0.7289	0.5778	-0.0695	+90	+19

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W. B. 7 ^b 685	6.2	+2.71	-11.0	+17 17.7	1 2 38.4	- 8 2.5	+0.7379	0.5674	-0.1157	+90	+15
f Geminorum	5.2	2.71	11.5	17 53.8	6 2.5	- 4 45.5	-0.2995	0.5645	0.1214	+20	-45
1 Cancri	5.9	2.70	12.5	16 3.1	13 56.9	+ 2 52.6	+0.6426	0.5602	0.1337	+85	+ 7
3 Cancri	6.0	2.72	12.5	17 34.6	15 38.8	+ 4 31.1	-1.2017	0.5592	0.1363	-41	-73
5 Cancri	6.3	+2.71	-12.6	+16 43.5	15 59.2	+ 4 50.7	-0.3460	0.5591	-0.1368	+18	-48
29 Cancri	5.9	2.70	13.8	14 32.1	2 4 31.2	- 7 2.4	+0.1554	0.5521	0.1538	+46	-22
A ¹ Cancri	5.6	2.68	14.4	13 1.9	11 23.8	- 0 23.3	+0.6717	0.5484	0.1619	+87	+ 5
A ² Cancri	5.8	2.67	14.6	12 28.2	13 10.5	+ 1 20.0	+0.9831	0.5474	0.1639	+90	+25
60 Cancri	5.7	2.66	14.9	12 0.0	17 28.2	+ 5 29.4	+0.7719	0.5451	0.1684	+90	+11
α Cancri	4.3	+2.66	-14.9	+12 14.2	18 41.5	+ 6 40.1	+0.3124	0.5443	-0.1697	+56	-16
κ Cancri	5.0	2.65	15.2	11 3.8	23 10.7	+11 0.9	+0.7983	0.5420	0.1740	+90	+11
ω Leonis	5.6	2.62	15.7	9 29.0	3 9 19.4	- 3 9.6	+0.6870	0.5369	0.1826	+86	+ 3
β Leonis	5.4	2.62	15.7	10 8.9	11 3.1	- 1 29.1	-0.3445	0.5360	0.1839	+18	-54
14 Sextantis	6.6	2.54	16.1	6 5.4	4 4 36.0	- 8 28.1	+0.7150	0.5283	0.1942	+90	+ 3
16 Sextantis	6.9	+2.54	-16.1	+ 6 39.1	5 50.8	- 7 15.6	-0.1359	0.5277	-0.1947	+30	-44

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

FEBRUARY.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'n's from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S.</i>
		$\Delta\alpha$	$\Delta\delta$								
		<i>s</i>	<i>"</i>	<i>°</i>	<i>d</i> <i>h</i> <i>m</i>	<i>h^m</i> <i>m</i>				<i>°</i>	<i>°</i>
19 Sextantis	6.0	+2.53	-16.0	+ 5 6.0	4 7 41.0	- 5 28 7	+1.1888	0.5270	-0.1955	+90	+37
34 Sextantis	6.6	2.40	15.9	4 5 7	23 6 4	+ 9 29 4	-0.7719	0.5218	0.1999	- 5	76
36 Sextantis	6.6	2.46	15.9	3 0 3	5 0 26.1	+10 46.7	+0.1525	0.5214	0.2001	+46	-28
55 Leonis	6.0	2.43	15.6	1 15.6	5 57.7	- 7 51.3	+0.9511	0.5198	0.2007	+90	+17
57 Leonis	6.9	2.43	15.5	0 57.4	6 13.0	- 7 36.5	+1.2299	0.5198	0.2007	+90	+30
ρ^3 Leonis	6.2	+2.41	-15.4	+ 0 31.7	10 7.9	- 3 48.3	+0.9136	0.5190	-0.2009	+90	+14
ρ^6 Leonis	5.5	2.39	15.3	+ 0 27.9	15 29.4	+ 1 23.8	-0.0932	0.5177	0.2008	+32	-42
ϵ Leonis	5.0	2.35	14.5	- 2 27.7	6 0 16.6	+ 9 55.9	+1.3566	0.5162	0.1998	+90	+62
χ Virginis	4.7	2.16	11.8	7 27.3	7 13 0.1	- 2 23.4	-0.2600	0.5155	0.1855	+21	-52
28 Virginis	7.0	2.15	11.8	6 57.5	14 26.3	- 0 59.6	-1.0739	0.5156	0.1846	-28	-90
ψ Virginis	5.0	+2.11	-10.9	- 9 0.3	20 59.7	+ 5 22.4	-0.0069	0.5165	-0.1803	+34	-37
γ Virginis	5.2	2.07	10.0	10 12.8	8 4 7.4	-11 42.2	-0.0657	0.5176	0.1749	+38	-33
50 Virginis	6.3	2.06	10.1	9 48.2	5 6.3	-10 45.1	-0.5595	0.5178	0.1742	+ 4	-74
56 Virginis	7.0	2.04	9.9	9 50.9	7 43.6	- 8 12.3	-0.9648	0.5184	0.1720	-21	-90
58 Virginis	7.0	2.03	9.8	10 1.6	9 8.7	- 6 49.7	-1.0094	0.5186	0.1708	-25	-90
62 Virginis	7.0	+2.02	- 9.4	-10 47.2	11 41.6	- 4 21.2	-0.6007	0.5192	-0.1687	+ 1	-78
α Virginis	1.2	2.01	9.3	10 38.8	13 10.8	- 2 54.6	-1.0051	0.5196	0.1674	-25	-90
ι Virginis	5.5	2.02	8.8	12 11.7	13 58.1	- 2 8.7	+0.5781	0.5198	0.1667	+69	- 5
B. A. C. 4700	5.2	1.87	5.8	15 50.2	9 12 36.2	- 4 10.7	+1.0870	0.5262	0.1435	+74	+29
B. A. C. 4896	6.6	1.69	3.6	17 22.8	10 8 54.9	- 8 29.3	+0.1289	0.5344	0.1178	+34	-30
10 Libræ	6.5	+1.70	-3.4	-17 56.9	9 2.4	- 8 22.1	+0.7417	0.5345	-0.1176	+72	+ 5
ι^1 Libræ	4.7	1.61	2.0	19 25.1	18 56.6	+ 1 13.4	+1.2625	0.5388	0.1038	+71	+53
ι^2 Libræ	6.5	1.61	2.0	19 16.5	19 28.7	+ 1 44.5	+1.0505	0.5390	0.1025	+71	+27
26 Libræ	6.5	1.57	2.7	17 24.0	20 6.3	+ 2 20.9	-1.0755	0.5392	0.1016	-40	-90
28 Libræ	6.0	1.55	2.3	17 48.0	23 8.7	+ 5 17.5	-0.9304	0.5406	0.0970	-29	-90
B. A. C. 5109	5.4	+1.51	- 1.2	-19 20.0	11 4 43.4	+10 41.6	+0.2300	0.5431	-0.0882	+36	-24
41 Libræ	5.7	1.47	1.1	18 58.6	7 42.7	-10 24.9	-0.4179	0.5445	0.0834	+ 1	-64
κ Libræ	5.0	1.46	0.9	19 21.5	9 8.9	- 9 1.5	-0.1175	0.5451	0.0810	+17	-44
λ Libræ	5.0	1.40	0.3	19 52.3	14 29.6	- 3 51.3	+0.0343	0.5475	0.0721	+24	-35
47 Libræ	6.4	1.39	- 0.5	19 5.4	15 17.3	- 3 5.2	-0.8749	0.5479	0.0707	-28	-90
β^1 Scorpii	2.7	+1.35	0.0	-19 32.1	20 8.5	+ 1 36.4	-0.7122	0.5501	-0.0623	-18	-90
ω^1 Scorpii	4.1	1.34	+ 0.4	20 24.1	20 45.7	+ 2 12.4	+0.1939	0.5503	0.0613	+32	-26
ω^2 Scorpii	4.6	1.34	0.5	20 36.1	21 2.0	+ 2 28.2	+0.3955	0.5505	0.0608	+44	-15
ν Scorpii	4.2	1.30	0.2	19 12.2	23 11.1	+ 4 33.0	-1.2532	0.5514	0.0570	-63	-90
B. A. C. 5395	7.0	1.31	0.9	21 8.8	23 55.9	+ 5 16.2	+0.8198	0.5517	0.0556	+69	+11
ψ Ophiuchi	4.6	+1.25	+ 0.8	-19 48.4	12 4 44.7	+ 9 55.4	-0.8849	0.5539	-0.0470	-30	-90
ω Ophiuchi	4.7	1.21	1.6	21 15.3	8 23.1	-10 33.6	+0.5283	0.5554	0.0402	+52	- 6
B. A. C. 5758	6.6	1.06	2.6	21 25.6	23 44.3	+ 4 16.1	+0.3180	0.5615	-0.0108	+34	-19
ξ Ophiuchi	4.5	0.97	3.0	21 0.3	13 6 19.0	+10 37.0	-0.1630	0.5639	+0.0023	+ 7	-47
52 Ophiuchi	6.5	0.91	3.7	21 58.6	12 37.4	- 7 17.8	+0.9289	0.5659	0.0150	+68	+19
B. A. C. 5954	6.8	+0.89	+ 3.7	-21 51.2	14 8.2	- 5 50.2	+0.8217	0.5664	+0.0180	+68	+11
58 Ophiuchi	5.0	0.86	3.8	21 38.1	16 12.2	- 3 50.5	+0.6286	0.5670	0.0222	+58	-1
B. A. C. 6098	6.0	0.76	3.9	20 44.2	14 0 35.9	+ 4 15.4	-0.0699	0.5693	0.0369	+15	-41
μ Sagittarii	4.0	0.71	4.2	21 5.0	5 26.1	+ 8 55.3	+0.5129	0.5704	0.0493	+52	- 8
14 Sagittarii	5.9	0.72	4.4	21 44.3	5 38.3	+ 9 7.0	+1.2149	0.5704	0.0497	+68	+48
15 Sagittarii	5.6	+0.71	+ 4.1	-20 45.4	6 4.2	+ 9 32.0	+0.1987	0.5706	+0.0506	+32	-25
16 Sagittarii	6.2	0.70	4.0	20 25.0	6 4.6	+ 9 32.4	-0.1604	0.5706	0.0506	+12	-46
17 Sagittarii	7.0	0.70	4.1	20 34.6	6 40.1	+10 6.6	+0.0384	0.5707	0.0518	+22	-35
21 Sagittarii	4.9	0.68	4.3	20 35.6	10 27.7	-10 14.0	+0.2677	0.5714	0.0587	+36	-23
B. A. C. 6347	6.0	0.60	4.6	21 8.0	16 18.2	- 4 36.0	+1.2151	0.5725	0.0714	+69	+47
B. A. C. 6386	7.3	+0.56	+ 4.6	-20 22.9	20 11.1	- 0 51.5	+0.7167	0.5731	+0.0793	+69	+ 4
29 Sagittarii	5.5	0.55	4.6	20 26.2	20 57.4	- 0 6.9	+0.8361	0.5732	0.0808	+70	+12
Lalande 35497	6.4	0.49	4.5	19 23.3	15 2 44.1	+ 5 27.3	+0.2387	0.5739	0.0923	+37	-23
B. A. C. 6536	5.5	0.47	4.6	19 26.7	4 58.5	+ 7 36.8	+0.5088	0.5741	0.0967	+55	- 8
d Sagittarii	4.9	0.44	4.6	19 7.7	8 59.9	+11 29.6	+0.5834	0.5744	0.1046	+61	- 4
ρ^1 Sagittarii	3.9	+0.42	+ 4.4	-18 2.0	10 45.1	-10 49.0	-0.3680	0.5745	+0.1076	+ 5	-60

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

FEBRUARY.

THE STAR'S				AT CONJUNCTION IN R. A.							Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>l</i>	<i>l'</i>	<i>μ'</i>	<i>N.</i>	<i>S.</i>	
		<i>Δα</i>	<i>Δδ</i>									
		<i>s</i>	<i>"</i>	<i>°</i>	<i>d</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>			
<i>ρ</i> ² Sagittarii	6.1	+0.42	+ 4.5	-18 29.4	15	10	48.8	-10 45.5	+0.1154	0.5745	+0.1080	+31 -30
B. A. C. 6658	7.3	0.39	4.5	18 33.5		13	29.6	- 8 10.5	+0.4792	0.5747	0.1131	+54 -10
B. A. C. 6710	6.0	0.36	4.6	18 27.0		17	20.6	- 4 27.9	+0.8165	0.5748	0.1204	+72 +10
<i>ε</i> ¹ Sagittarii	5.6	0.35	4.2	16 31.2		18	56.7	- 2 55.3	-0.9837	0.5749	0.1233	-30 -90
<i>ε</i> ² Sagittarii	5.0	0.34	4.2	16 21.3		19	43.0	- 2 10.7	-1.0570	0.5750	0.1247	-36 -90
<i>g</i> Sagittarii	5.0	+0.29	+ 4.2	-15 45.2	16	2	20.9	+ 4 13.0	-0.8065	0.5753	+0.1366	-17 -90
NEW MOON.												
15 Piscium	6.6	+0.22	+ 2.5	+ 0 46.0	20	0	40.9	- 0 49.7	+0.8814	0.5717	+0.2199	+90 +17
16 Piscium	5.6	0.23	2.6	1 33.2		1	5.0	- 0 26.4	+0.1891	0.5717	0.2198	+48 -28
2 Piscium	4.7	+0.24	+ 2.5	+ 1 14.1		3	31.9	+ 1 55.2	+1.0419	0.5724	+0.2193	+90 +23
19 Piscium	5.2	0.25	2.7	2 56.3		5	24.7	+ 3 44.0	-0.2354	0.5725	0.2188	+24 -50
22 Piscium	5.9	0.27	2.5	2 22.8		7	49.1	+ 6 3.2	+0.8434	0.5727	0.2181	+90 +10
45 Piscium	6.9	0.38	2.8	7 8.7		22	20.3	- 3 56.9	-0.7657	0.5745	0.2105	- 5 -76
51 Piscium	5.7	0.40	2.6	6 24.6	21	1	12.3	- 1 11.1	+0.5656	0.5750	0.2085	+74 - 5
100 Piscium	6.8	+0.68	+ 2.7	+12 3.2	22	3	40.0	+ 0 18.6	+0.1350	0.5799	+0.1807	+45 -25
<i>π</i> Piscium	5.6	0.69	2.5	11 38.2		4	36.8	+ 1 13.4	+0.7211	0.5801	0.1794	+90 + 7
B. A. C. 490	7.5	0.69	2.5	11 34.4		4	50.9	+ 1 26.9	+0.8256	0.5802	0.1791	+90 +14
19 Arietis	6.2	0.89	2.4	14 49.0		19	34.3	- 8 22.6	+0.0527	0.5831	0.1569	+40 -26
36 Arietis	6.5	1.08	2.3	17 20.7	23	8	27.1	+ 4 1.3	-0.6001	0.5854	0.1345	+ 3 -65
40 Arietis	6.1	+1.11	+ 2.3	+17 52.3		10	10.6	+ 5 40.9	-0.9018	0.5857	+0.1305	-17 -72
<i>ρ</i> ¹ Arietis	7.0	1.14	1.9	17 20.0		12	48.1	+ 8 12.4	-0.0199	0.5860	0.1263	+36 -28
<i>ρ</i> ² Arietis	5.8	1.14	2.1	17 55.9		13	9.7	+ 8 33.3	-0.5789	0.5861	0.1256	+ 4 -63
<i>ρ</i> ³ Arietis	5.5	1.14	2.0	17 37.8		13	24.5	+ 8 47.5	-0.2433	0.5862	0.1251	+23 -40
50 Arietis	6.8	1.17	1.8	17 36.7		15	5.8	+10 24.9	-0.0179	0.5864	0.1219	+36 +27
53 Arietis	6.3	+1.21	+ 1.5	+17 29.9		17	55.5	-10 51.9	+0.4343	0.5868	+0.1163	+65 + 2
54 Arietis	6.3	1.22	1.8	18 24.9		18	17.2	-10 30.9	-0.4511	0.5868	0.1156	+12 -53
<i>δ</i> Arietis	4.5	1.24	2.0	19 21.2		19	35.8	- 9 15.4	-1.2492	0.5871	0.1130	-50 -71
13 Tauri	5.4	1.42	0.8	19 23.0	24	8	7.9	+ 2 48.1	-0.0277	0.5879	0.0871	+35 -24
14 Tauri	6.4	1.43	0.8	19 21.2		8	43.5	+ 3 22.3	+0.0550	0.5879	0.0858	+40 -20
B. A. C. 1143	5.8	+1.45	+ 1.2	+20 37.0		8	59.4	+ 3 37.7	-1.2056	0.5879	+0.0852	-45 -70
B. A. C. 1242	6.6	1.54	+ 0.3	19 55.3		15	46.5	+10 9.3	-0.0262	0.5885	0.0707	+38 -20
<i>ω</i> ¹ Tauri	5.8	1.58	- 0.3	19 20.9		19	3.5	-19 41.3	+0.8344	0.5880	0.0635	+90 +26
<i>ω</i> ² Tauri	4.6	1.64	0.3	20 20.1		22	20.8	- 7 31.5	+0.0219	0.5879	0.0562	+38 -19
51 Tauri	5.4	1.68	0.0	21 20.2		22	47.0	- 7 6.3	-0.9795	0.5878	0.0553	-23 -69
53 Tauri	5.5	+1.66	- 0.2	+20 54.2		23	13.2	- 6 41.8	-0.5109	0.5878	+0.0543	+ 8 -52
56 Tauri	5.4	1.67	0.0	21 32.1		23	17.0	- 6 37.4	-1.1539	0.5878	0.0541	-39 -69
B. A. C. 1373	5.7	1.71	0.4	21 23.9	25	2	42.4	- 3 19.8	-0.8446	0.5875	0.0465	-13 -69
W. B. 4 ^h 650	5.8	1.76	1.2	20 29.1		6	54.6	+ 0 42.8	+0.2681	0.5871	0.0372	+53 - 4
<i>ι</i> Tauri	4.7	1.91	2.1	21 26.9		17	3.8	+10 28.9	-0.4593	0.5850	0.0145	+11 -44
<i>ι</i> Tauri	5.4	+1.92	- 2.7	+20 17.2		19	1.6	-11 37.7	+0.7616	0.5851	+0.0100	+90 +26
105 Tauri	5.8	1.94	2.3	21 34.4		19	3.0	-11 36.4	-0.5662	0.5851	0.0100	+ 4 -52
108 Tauri	6.3	1.99	2.5	22 10.3		22	8.8	- 8 37.6	-1.1652	0.5844	+0.0031	-41 -68
<i>η</i> Tauri	5.2	2.00	2.8	21 59.6		23	43.4	- 7 6.5	-0.9798	0.5840	-0.0003	-23 -68
<i>ο</i> Tauri	4.8	2.05	3.2	21 51.1	26	3	11.2	- 3 46.6	-0.8486	0.5831	0.0079	-13 -68
<i>ζ</i> Tauri	3.0	+2.09	- 4.0	+21 4.9		7	21.8	+ 0 14.7	-0.1023	0.5822	-0.0171	+31 -22
B. A. C. 1867	7.2	2.15	5.1	20 16.4		13	55.6	+ 6 33.9	+0.5795	0.5799	0.0312	+79 +14
<i>χ</i> ¹ Orionis	4.6	2.16	5.1	20 15.4		14	23.0	+ 7 0.3	+0.5831	0.5797	0.0322	+79 +14
<i>χ</i> ² Orionis	5.8	2.15	5.3	19 43.7		14	37.0	+ 7 13.7	+1.1251	0.5796	0.0327	+90 +51
<i>χ</i> ³ Orionis	5.1	2.19	5.8	19 41.4		18	12.0	+10 40.9	+1.0359	0.5783	0.0402	+90 +42
<i>χ</i> ⁴ Orionis	4.8	+2.25	- 5.7	+20 8.4		18	23.5	+10 51.9	+0.5600	0.5783	-0.0407	+77 +12
68 Orionis	5.6	2.24	6.2	19 48.6		21	49.7	- 9 49.5	+0.7521	0.5769	0.0478	+90 +23
15 Gemi. (2 ^d star)	7.0	2.32	6.7	20 50.9	27	4	31.6	- 3 22.3	-0.6999	0.5742	0.0614	- 3 -68
16 Geminorum	6.8	2.32	6.8	20 33.2		4	36.2	- 3 17.8	-0.3957	0.5742	0.0615	+14 -44
<i>ν</i> Geminorum	4.0	2.32	7.0	20 16.4		5	2.7	- 2 52.3	-0.1286	0.5740	0.0624	+29 -28
22 Geminorum	7.2	+2.32	- 7.4	+19 30.2		7	30.2	- 0 30.3	+0.5195	0.5730	-0.0672	+73 + 7

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

FEBRUARY.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>V</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$								
		s	"								
W. B. 7 ^h 685	6.2	+2.52	-11.0	+17 17.7	28 8 41.3	- 0 11.6	+0.5728	0.5611	-0.1126	+77	+ 5
<i>f</i> Geminorum	5.2	2.55	11.2	17 53.9	12 9.3	+ 3 8 8	-0.4642	0.5591	0.1181	+11	-54
<i>i</i> Cancri	5.9	2.58	12.5	16 3.1	20 11.8	+10 55 0	+0.4996	0.5549	0.1302	+70	- 1
5 Cancri	6.3	+2.60	-12.5	+16 43.5	22 16.0	-11 4.9	-0.4906	0.5539	-0.1332	+10	-58

MARCH.

29 Cancri	5.9	+2.64	-14.2	+14 32.1	1 11 0.2	+ 1 14.1	+0.0419	0.5474	-0.1501	+39	-28
A ¹ Cancri	5.6	2.66	15.0	13 1.9	17 59.2	+ 7 59.6	+0.5777	0.5439	0.1582	+76	0
A ² Cancri	5.8	2.66	15.3	12 28.2	19 47.6	+ 9 44.6	+0.8948	0.5431	0.1602	+90	+19
60 Cancri	5.7	+2.67	-15.6	+12 0.0	2 0 9.0	-10 2.3	+0.6926	0.5410	-0.1647	+90	+ 6
<i>a</i> Cancri	4.3	2.68	15.7	12 14.2	1 23.3	- 8 50.4	+0.2334	0.5404	0.1660	+51	-20
κ Cancri	5.0	2.69	16.1	11 3.7	5 56.2	- 4 26.0	+0.7343	0.5384	0.1704	+90	+ 8
ω Leonis	5.6	2.71	16.9	9 29.0	16 12.5	+ 5 31.2	+0.6466	0.5339	0.1790	+83	+ 1
<i>h</i> Leonis	5.4	2.71	16.9	10 8.9	17 57.3	+ 7 12.7	-0.3862	0.5332	0.1803	+16	-57
14 Sextantis	6.6	+2.72	-18.0	+ 6 5.4	3 11 40.3	+ 0 23.7	+0.7241	0.5268	-0.1910	+90	+ 4
16 Sextantis	6.9	2.73	18.0	6 39.1	12 55.7	+ 1 36.8	-0.1277	0.5262	0.1916	+30	-43
19 Sextantis	6.0	2.73	18.1	5 5.9	14 46.6	+ 3 24.4	+1.2083	0.5259	0.1924	+90	+39
34 Sextantis	6.6	2.73	18.3	4 5.7	4 6 17.3	- 5 32.1	-0.7207	0.5216	0.1972	- 3	-85
36 Sextantis	6.6	2.73	18.4	3 0.2	7 37.2	- 4 14.5	+0.2109	0.5213	0.1975	+49	-25
55 Leonis	6.0	+2.74	-18.4	+ 1 15.6	13 9.9	+ 1 8.6	+1.0246	0.5201	-0.1983	+90	+22
57 Leonis	6.9	2.74	18.4	0 57.3	13 25.3	+ 1 23.5	+1.3099	0.5201	0.1983	+90	+62
ψ Leonis	6.2	2.73	18.3	0 31.6	17 20.7	+ 5 12.1	+0.9992	0.5195	0.1986	+90	+20
<i>p</i> ⁵ Leonis	5.5	2.73	18.3	+ 0 27.8	22 42.8	+10 24.9	+0.0024	0.5186	0.1987	+37	-37
χ Virginis	4.7	2.69	15.7	- 7 27.3	6 20 9.4	+ 6 33.5	-0.0625	0.5179	0.1844	+32	-40
28 Virginis	7.0	+2.68	-15.7	- 6 57.6	21 35.4	+ 7 57.0	-0.8749	0.5181	-0.1835	-14	-90
ψ Virginis	5.0	2.68	14.9	9 0.3	7 4 7.7	- 9 41.9	+0.2057	0.5189	0.1792	+46	-25
<i>g</i> Virginis	5.2	2.67	14.2	10 12.9	11 14.4	- 2 47.6	+0.2905	0.5200	0.1740	+51	-21
50 Virginis	6.3	2.66	14.2	9 48.3	12 13.1	- 1 50.6	-0.3339	0.5202	0.1732	+16	-57
56 Virginis	7.0	2.66	14.0	9 50.9	14 50.0	+ 0 41.7	-0.7355	0.5207	0.1711	- 7	-90
58 Virginis	7.0	+2.64	-13.8	-10 1.7	16 15.0	+ 2 4.3	-0.7784	0.5209	-0.1699	-10	-90
62 Virginis	7.0	2.64	13.5	10 47.3	18 47.6	+ 4 32.5	-0.3649	0.5215	0.1678	+13	-59
<i>a</i> Virginis	1.2	2.63	13.4	10 38.9	20 16.6	+ 5 58.8	-0.7676	0.5218	0.1665	-10	-90
<i>i</i> Virginis	5.5	2.65	13.0	12 11.8	21 3.9	+ 6 44.8	+0.8196	0.5219	0.1658	+78	+ 9
86 Virginis	6.0	2.60	12.1	11 56.0	8 7 0.5	- 7 36.2	-1.0740	0.5243	0.1563	-32	-90
B. A. C. 4896	6.6	+2.47	- 7.3	-17 22.8	9 16 5.9	+ 0 29.3	+0.4156	0.5341	-0.1168	+51	-14
10 Libræ	6.5	2.48	7.1	17 57.0	16 13.5	+ 0 36.7	+1.0312	0.5342	0.1166	+72	+26
26 Libræ	6.5	2.39	6.0	17 24.0	10 3 22.7	+11 25.0	-0.7893	0.5379	0.1007	-19	-90
28 Libræ	6.0	2.37	5.6	17 48.1	6 27.0	- 9 36.5	-0.6485	0.5391	0.0961	-11	-86
B. A. C. 5109	5.4	2.35	4.4	19 20.1	12 5.3	- 4 8.9	+0.5268	0.5410	0.0874	+56	- 7
41 Libræ	5.7	+2.31	- 4.2	-18 58.6	15 6.8	- 1 13.2	-0.1245	0.5421	-0.0826	+16	-44
κ Libræ	5.0	2.30	3.9	19 21.5	16 34.1	+ 0 11.3	+0.1781	0.5426	0.0802	+33	-27
λ Libræ	5.0	2.28	3.1	19 52.3	21 59.3	+ 5 26.0	+0.3317	0.5444	0.0714	+41	-18
47 Libræ	6.4	2.24	3.2	19 5.5	22 47.7	+ 6 12.8	-0.5844	0.5447	0.0700	-11	-79
β ¹ Scorpïi	2.7	2.20	2.5	19 32.1	11 3 43.4	+10 58.9	-0.4203	0.5464	0.0617	- 2	-64
ω ¹ Scorpïi	4.1	+2.21	- 2.1	-20 24.1	4 21.0	+11 35.3	+0.4926	0.5465	-0.0606	+51	- 9
ω ² Scorpïi	4.6	2.21	2.1	20 36.1	4 37.7	+11 51.5	+0.6960	0.5467	0.0602	+69	+ 3
ν Scorpïi	4.2	2.16	2.3	19 12.3	6 49.0	-10 1.5	-0.9658	0.5475	0.0564	-35	-90
B. A. C. 5395	7.0	2.19	1.5	21 8.8	7 34.5	- 9 17.6	+1.1236	0.5477	0.0551	+69	+36
ψ Ophiuchi	4.6	2.12	1.3	19 48.4	12 28.5	- 4 33.2	-0.5956	0.5493	0.0465	-13	-80
ω Ophiuchi	4.7	+2.10	- 0.5	-21 15.3	16 11.0	- 0 58.0	+0.8289	0.5505	-0.0399	+69	+12
B. A. C. 5580	5.7	2.02	- 0.5	19 44.1	20 44.0	+ 3 25.9	-0.9942	0.5521	0.0317	-40	-90
B. A. C. 5758	6.6	1.95	+ 1.1	21 25.6	12 7 51.7	- 9 48.7	+0.6112	0.5553	-0.0110	+56	- 2
ξ Ophiuchi	4.5	1.84	1.8	21 0.4	14 35.8	- 3 18.3	+0.1221	0.5571	+0.0018	+22	-30
52 Ophiuchi	6.5	1.77	2.7	21 58.6	21 3.6	+ 2 56.3	+1.2183	0.5587	0.0142	+68	+49
B. A. C. 5954	6.8	+1.75	+ 2.9	-21 51.2	22 36.9	+ 4 26.4	+1.1118	0.5591	+0.0172	+68	+35

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MARCH.

THE STAR'S					AT CONJUNCTION IN R. A.							Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S.</i>	<i>N.</i>	<i>S.</i>
		$\Delta\alpha$	$\Delta\delta$										
		<i>s</i>	<i>"</i>										
58 Ophiuchi	5.0	+1.72	+3.1	-21 38.1	13 0 43.8	+ 6 28.9	+0.9152	0.5596	+0.0213	+68	+18		
B. A. C. 6098	6.0	1.60	3.6	20 44.2	9 20.8	- 9 11.9	+0.2023	0.5615	0.0380	+30	25		
μ Sagittarii	4.0	1.54	4.1	21 5.0	14 18.7	- 4 24.3	+0.7860	0.5624	0.0477	+69	+ 9		
15 Sagittarii	5.6	1.53	4.1	20 45.4	14 57.9	- 3 46.4	+0.4777	0.5625	0.0490	+48	+10		
16 Sagittarii	6.2	1.53	3.9	20 25.0	14 58.3	- 3 46.0	+0.1047	0.5625	0.0491	+25	-31		
17 Sagittarii	7.0	+1.52	+4.0	-20 34.6	15 34.8	- 3 10.8	+0.3051	0.5626	+0.0501	+37	-19		
21 Sagittarii	4.9	1.48	4.3	20 35.6	19 28.6	+ 0 34.8	+0.5327	0.5633	0.0577	+54	6		
B. A. C. 6386	7.3	1.35	5.0	20 22.8	14 5 27.9	+10 13.3	+0.9747	0.5648	0.0769	+18	-41		
29 Sagittarii	5.5	1.34	5.1	20 26.2	6 15.5	+10 59.2	+1.0943	0.5649	0.0784	+70	+33		
Lalande 35497	6.4	1.25	5.1	19 23.3	12 11.7	- 7 17.0	+0.4824	0.5656	0.0896	+53	-10		
B. A. C. 6536	5.5	+1.23	+5.3	-19 26.6	14 29.6	- 5 4.0	+0.7519	0.5659	+0.0940	+71	+ 6		
δ Sagittarii	4.9	1.17	5.4	19 7.7	18 37.5	- 1 4.7	+0.8211	0.5663	0.1016	+71	+11		
ρ^1 Sagittarii	3.9	1.14	5.2	18 2.0	20 25.4	+ 0 39.4	-0.1429	0.5664	0.1049	+17	-45		
ρ^2 Sagittarii	6.1	1.15	5.3	18 29.4	20 29.1	+ 0 42.9	+0.3438	0.5664	0.1050	+45	-17		
B. A. C. 6658	7.3	1.11	5.5	18 33.5	23 14.1	+ 3 22.1	+0.7090	0.5667	0.1100	+71	+ 4		
B. A. C. 6710	6.0	+1.06	+5.6	-18 27.0	15 3 11.0	+ 7 10.6	+1.0425	0.5669	+0.1171	+72	+27		
ϵ^1 Sagittarii	5.6	1.03	5.1	16 31.1	4 49.4	+ 8 45.5	-0.7783	0.5671	0.1200	-17	-90		
ϵ^2 Sagittarii	5.0	1.02	5.1	16 21.3	5 36.9	+ 9 31.3	-0.8537	0.5671	0.1214	-21	-90		
ζ Sagittarii	5.0	0.94	5.2	15 45.2	12 24.4	- 7 55.5	-0.6122	0.5676	0.1330	- 5	-81		
B. A. C. 6992	6.2	0.83	5.4	15 5.7	22 25.9	+ 1 44.8	+0.1268	0.5681	0.1494	+36	-30		
β Capricorni	3.4	+0.83	+5.4	-15 5.6	22 32.1	+ 1 50.8	+0.1391	0.5681	+0.1495	+37	-29		
B. A. C. 7087	6.2	0.76	5.3	14 3.6	16 4 19.6	+ 7 26.0	-0.0310	0.5684	0.1584	+30	-38		
8 Aquarii	6.8	0.65	5.3	13 26.1	15 36.8	- 5 40.7	+1.2063	0.5690	0.1744	+67	+40		
ν Aquarii	4.6	0.62	4.9	11 46.3	19 52.0	- 1 34.5	+0.2657	0.5692	0.1799	+48	-22		
B. A. C. 7408	6.9	0.57	4.5	9 44.8	17 1 18.7	+ 3 40.5	-0.7891	0.5694	0.1865	-10	-90		
17 Aquarii	6.4	+0.56	+4.5	- 9 44.4	1 44.1	+ 4 5.1	-0.7164	0.5695	+0.1870	- 6	-90		
19 Aquarii	5.7	0.55	4.6	10 10.1	2 43.4	+ 5 2.2	-0.0972	0.5696	0.1881	-28	-42		
ξ Aquarii	4.8	0.51	4.2	8 17.8	8 13.1	+10 20.2	-0.9343	0.5700	0.1941	+19	-90		
B. A. C. 7562	5.5	0.49	4.4	9 29.4	11 20.4	-10 39.0	+0.8782	0.5702	0.1972	+80	+13		
ϵ^1 Capricorni	5.2	0.49	4.5	9 34.2	11 22.6	-10 36.9	+0.9645	0.5703	0.1973	+80	+19		
ϵ^2 Capricorni	6.2	+0.48	+4.4	- 9 43.9	11 55.7	-10 5.0	+1.2369	0.5703	+0.1978	+80	+42		
30 Aquarii	5.6	0.44	3.9	- 7 0.0	19 21.9	- 2 54.7	-0.0103	0.5710	0.2044	+35	-37		
NEW MOON.													
19 Arietis	6.2	+0.60	+0.7	+14 49.0	22 4 12.1	+ 2 3.1	-0.1230	0.5948	+0.1583	+30	-36		
36 Arietis	6.5	+0.72	+0.5	+17 20.7	16 37.7	-10 0.4	-0.7937	0.5972	+0.1357	- 9	-72		
40 Arietis	6.1	0.75	0.5	17 52.3	18 17.5	- 8 4.5	-1.0927	0.5974	0.1324	-32	-72		
ρ^1 Arietis	7.0	0.77	0.2	17 19.9	20 49.6	- 5 58.4	-0.2291	0.5977	0.1274	+24	-39		
ρ^2 Arietis	5.8	0.77	0.3	17 55.8	21 10.4	- 5 38.3	-0.7789	0.5978	0.1267	- 8	-72		
ρ^3 Arietis	5.5	0.78	0.2	17 37.7	21 24.7	- 5 24.6	-0.4492	0.5978	0.1263	+11	-53		
50 Arietis	6.8	+0.79	+0.1	+17 36.7	23 2.4	- 3 50.8	-0.2299	0.5980	+0.1230	+24	-38		
53 Arietis	6.3	0.82	-0.1	17 29.9	23 1 46.2	- 1 13.4	+0.2114	0.5983	0.1174	+39	-24		
54 Arietis	6.3	0.83	+0.1	18 24.9	2 7.2	- 0 53.2	-0.6595	0.5984	0.1166	- 2	-67		
13 Tauri	5.4	0.98	-0.6	19 23.0	15 29.9	+11 57.8	-0.2573	0.5988	0.0878	+22	-37		
14 Tauri	6.4	0.99	0.7	19 21.1	16 4.4	-11 29.1	-0.1764	0.5988	0.0865	+28	-33		
B. A. C. 1242	6.6	+1.08	-1.1	+19 55.3	22 53.9	- 4 55.6	-0.2099	0.5983	+0.0711	+24	-33		
ω^1 Tauri	5.8	1.11	1.6	19 20.8	24 2 4.8	- 1 52.3	+0.5830	0.5980	0.0639	+79	+12		
ω^2 Tauri	4.6	1.16	1.5	20 20.1	5 16.2	+ 1 11.5	-0.2190	0.5976	0.0566	+24	-32		
51 Tauri	5.4	1.18	1.3	21 20.2	5 41.6	+ 1 35.9	-1.2057	0.5975	0.0556	-46	-69		
53 Tauri	5.5	1.18	1.4	20 54.1	6 7.1	+ 2 0.4	-0.7443	0.5974	0.0546	- 6	-69		
B. A. C. 1373	5.7	+1.23	-1.6	+21 23.9	9 30.2	+ 5 15.6	-1.0744	0.5963	+0.0468	-31	-69		
W. B. 4 ^h 650	5.8	1.27	2.3	20 29.1	13 35.3	+ 9 11.0	+0.0191	0.5960	0.0373	+38	-17		
ι Tauri	4.7	1.41	2.9	21 26.9	23 28.9	- 5 18.5	-0.7038	0.5932	0.0145	- 4	-66		
ν Tauri	5.4	1.42	3.5	20 17.2	25 1 23.8	- 3 28.1	+0.5024	0.5926	0.0101	+71	+12		
105 Tauri	5.8	1.43	3.0	21 34.4	1 25.2	- 3 26.8	-0.8085	0.5926	0.0100	-11	-68		
107 Tauri	6.5	+1.42	-3.7	+19 43.9	1 49.2	- 3 3.7	+1.0744	0.5924	+0.0102	+90	+48		

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MARCH.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S.</i>
		$\Delta\alpha$	$\Delta\delta$								
		<i>s</i>	<i>"</i>								
<i>n</i> Tauri	5.2	+1.50	- 3.3	+21 59.6	25 5 59.3	+ 0 56.8	-1.2183	0.5909	-0.0003	-49	-68
<i>o</i> Tauri	4.8	1.54	3.7	21 51.1	9 22.5	+ 4 12.1	-1.0893	0.5895	0.0080	-33	-68
ζ Tauri	3.0	1.58	4.4	21 4.9	13 27.9	+ 8 8.2	-0.3522	0.5877	0.0171	+17	-37
B. A. C. 1867	7.2	1.65	5.3	20 16.4	19 54.7	- 9 39.6	+0.3225	0.5849	0.0312	+57	0
χ^1 Orionis	4.6	1.65	5.4	20 15.4	20 21.6	- 9 13.8	+0.3263	0.5846	0.0322	+57	0
χ^2 Orionis	5.8	+1.69	- 5.6	+19 43.7	20 35.6	- 9 0.3	+0.8625	0.5846	-0.0327	+90	+31
χ^3 Orionis	5.1	1.69	6.0	19 41.4	26 0 7.1	- 5 36.7	+0.7753	0.5328	0.0402	+90	+25
χ^4 Orionis	4.8	1.70	5.8	20 8.4	0 18.2	- 5 25.9	+0.3041	0.5827	0.0406	+56	- 2
68 Orionis	5.6	1.74	6.3	19 48.6	3 41.2	- 2 10.6	+0.4956	0.5810	0.0477	+70	+ 8
71 Orionis	5.1	1.74	6.7	19 11.3	4 53.1	- 1 1.3	+1.0828	0.5804	0.0501	+90	+45
15 Gemi. (<i>2^d star</i>)	7.0	+1.83	- 6.6	+20 50.9	10 17.9	+ 4 11.5	-0.9423	0.5774	-0.0611	-20	-69
16 Geminorum	6.8	1.83	6.7	20 33.2	10 22.5	+ 4 15.9	-0.6406	0.5774	0.0613	0	-63
<i>v</i> Geminorum	4.0	1.83	6.9	20 16.4	10 48.6	+ 4 41.1	-0.3753	0.5771	0.0621	+15	-43
22 Geminorum	7.2	1.83	7.3	19 30.2	13 14.5	+ 7 1.7	+0.2686	0.5758	0.0669	+53	- 7
W. B. 7 ^h 685	6.2	2.09	10.5	17 17.7	27 14 16.2	+ 7 10.1	+0.3387	0.5608	0.1114	+58	- 8
<i>f</i> Geminorum	5.2	+2.13	-10.6	+17 53.8	17 43.2	+10 30.0	-0.6917	0.5587	-0.1169	- 2	-71
1 Cancr	5.9	2.19	12.0	16 3.1	28 1 45.5	- 5 43.9	+0.2774	0.5539	0.1287	+54	-12
5 Cancr	6.3	2.21	11.9	16 43.5	3 49.8	- 3 43.8	-0.7086	0.5527	0.1316	- 3	-73
29 Cancr	5.9	2.30	13.6	14 32.1	16 36.2	+ 8 37.5	-0.1624	0.5453	0.1480	+28	-39
A ¹ Cancr	5.6	2.35	14.5	13 1.9	23 37.1	- 8 35.1	+0.3831	0.5415	0.1559	+60	-10
A ² Cancr	5.8	+2.36	-14.8	+12 28.2	29 1 26.1	- 6 49.6	+0.7029	0.5406	-0.1578	+90	+ 7
60 Cancr	5.7	2.39	15.2	12 0.0	5 49.1	- 2 34.8	+0.5072	0.5383	0.1623	+70	- 4
<i>a</i> Cancr	4.3	2.40	15.2	12 14.2	7 3.9	- 1 22.4	+0.0493	0.5377	0.1635	+39	-29
κ Cancr	5.0	2.42	15.8	11 3.7	11 38.6	+ 3 3.7	+0.5582	0.5355	0.1677	+74	- 2
ω Leonis	5.6	2.49	16.7	9 29.0	21 59.7	-10 54.3	+0.4874	0.5309	0.1761	+68	- 7
λ Leonis	5.4	+2.49	-16.6	+10 8.9	23 44.8	- 9 12.4	-0.5428	0.5301	-0.1774	+ 7	-68
14 Sextantis	6.6	2.59	18.2	6 5.4	30 17 37.5	+ 8 8.4	+0.6010	0.5238	0.1879	+78	- 3
16 Sextantis	6.9	2.60	18.1	6 39.1	18 53.5	+ 9 22.1	-0.2506	0.5234	0.1885	+23	-50
19 Sextantis	6.0	2.60	18.5	5 5.9	20 45.4	+11 10.7	+1.0927	0.5228	0.1893	+90	+29
34 Sextantis	6.6	2.68	18.8	4 5.7	31 12 23.7	+ 2 21.7	-0.8104	0.5192	0.1942	- 8	-86
36 Sextantis	6.6	+2.69	-19.0	+ 3 0.2	13 44.3	+ 3 40.0	+0.1266	0.5189	-0.1945	+44	-29
55 Leonis	6.0	2.72	19.3	1 15.6	19 19.5	+ 9 5.6	+0.9551	0.5180	0.1953	+90	+18
57 Leonis	6.9	2.72	19.3	0 57.3	19 34.8	+ 9 20.4	+1.2400	0.5179	0.1954	+90	+42
ρ^2 Leonis	6.2	+2.73	-19.4	+ 0 31.6	23 31.9	-10 49.2	+0.9383	0.5172	-0.1958	+90	+16

APRIL.

ρ^6 Leonis	5.5	+2.76	-19.2	+ 0 27.8	1 4 56.3	- 5 34.2	-0.0505	0.5168	-0.1962	+34	-39
χ Virginis	4.7	2.94	17.9	- 7 27.4	3 2 32.9	- 9 15.5	-0.0203	0.5186	0.1826	+34	-38
28 Virginis	7.0	2.94	17.8	6 57.6	3 59.0	- 7 51.8	-0.8315	0.5187	0.1818	-11	-90
ψ Virginis	5.0	+2.97	-17.3	- 9 0.3	10 31.4	- 1 30.8	+0.2642	0.5198	-0.1780	+49	-22
γ Virginis	5.2	2.98	16.7	10 12.9	17 38.0	+ 5 23.5	+0.3627	0.5213	0.1725	+55	-17
50 Virginis	6.3	2.98	16.6	9 48.4	18 36.7	+ 6 20.5	-0.2611	0.5215	0.1717	+19	-52
56 Virginis	7.0	2.99	16.4	9 51.0	21 13.5	+ 8 52.7	-0.6584	0.5220	0.1697	- 3	-84
58 Virginis	7.0	3.01	16.2	10 1.7	22 38.4	+10 15.1	-0.6985	0.5224	0.1685	- 5	-90
62 Virginis	7.0	+3.01	-16.0	-10 47.3	4 0 8.2	+11 42.4	-0.1057	0.5227	-0.1673	-27	-42
<i>a</i> Virginis	1.2	3.02	15.8	10 38.9	2 39.8	- 9 50.5	-0.6808	0.5233	0.1651	+ 5	-87
<i>i</i> Virginis	5.5	3.02	15.7	12 11.8	3 27.0	- 9 4.6	+0.9103	0.5235	0.1643	+78	+16
86 Virginis	6.0	3.02	14.7	11 56.1	13 22.7	+ 0 33.5	-0.9688	0.5261	0.1550	-24	-90
B. A. C. 4896	6.6	3.06	9.9	17 22.9	5 22 25.4	+ 8 36.3	+0.5717	0.5359	0.1159	+62	- 4
10 Libræ	6.5	+3.07	- 9.8	-17 57.0	22 33.9	+ 8 43.6	+1.1888	0.5360	-0.1157	+72	+41
26 Libræ	6.5	3.02	8.4	17 24.1	6 9 42.4	- 4 27.8	-0.6231	0.5394	0.0997	- 9	-83
28 Libræ	6.0	3.02	7.9	17 48.1	12 46.9	- 1 29.1	-0.4787	0.5404	0.0951	- 1	-68
B. A. C. 5109	5.4	3.02	6.7	17 20.1	18 25.8	+ 3 59.1	+0.7060	0.5421	0.0864	+70	+ 4
41 Libræ	5.7	3.00	6.3	18 58.7	21 28.0	+ 6 55.5	+0.9547	0.5430	0.0816	+26	-33
κ Libræ	5.0	+3.00	- 6.0	-19 21.6	22 55.3	+ 8 19.8	+0.3606	0.5434	-0.0793	+44	-16

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

APRIL.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.		
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N.	S.	
		$\Delta\alpha$	$\Delta\delta$									
		s	"	°	d	h	m			°	°	
γ Libræ	5.0	+2.97	-5.1	-19 52.4	7	4	21.6	10 24.3	+0.5198	0.5450	-0.0705	+55 - 7
47 Libræ	6.4	2.95	5.2	19 5.5	5	10.3	9 37.1	-0.3991	0.5452	0.0691	0 -63	
β Scorpii	2.7	2.93	4.3	19 32.2	10	7.3	4 49.6	-0.2306	0.5466	0.0608	+9 -50	
ω Scorpii	4.1	2.94	4.0	20 24.1	10	45.4	-4 12.7	+0.6870	0.5468	0.0598	+67 + 3	
ω^2 Scorpii	4.6	2.95	3.9	20 36.2	11	2.0	3 56.7	+0.8914	0.5468	0.0593	+69 +17	
ν Scorpii	4.2	+2.90	-3.9	-19 12.3	13	13.9	1 40.0	-0.7766	0.5475	-0.0555	-24 -90	
ψ Ophiuchi	4.6	2.88	2.9	19 48.4	18	55.8	+3 41.7	-0.4009	0.5488	0.0457	-2 -63	
ω Ophiuchi	4.7	2.88	2.0	21 15.3	22	40.1	+7 18.6	+1.0333	0.5497	0.0391	+69 +28	
B. A. C. 5580	5.7	2.81	-1.3	19 44.1	8	3 15.5	+11 44.9	-0.7974	0.5508	0.0309	-27 -90	
B. A. C. 5758	6.6	2.76	+0.1	21 25.7	14	30.7	-1 22.2	+0.8244	0.5531	-0.0104	+69 +12	
ξ Ophiuchi	4.5	+2.67	+1.3	-21 0.4	21	20.2	+5 13.6	+0.3340	0.5543	+0.0022	+35 -17	
58 Ophiuchi	5.0	2.57	3.0	21 38.1	9	7 38.0	8 49.3	+1.1369	0.5557	0.0214	+68 +38	
B. A. C. 6098	6.0	2.45	3.8	20 44.2	16	24.6	-0 20.4	+0.4191	0.5567	0.0379	+44 -13	
μ Sagittarii	4.0	2.39	4.6	21 5.0	21	28.8	+4 33.5	+1.0093	0.5571	0.0473	+69 +25	
15 Sagittarii	5.6	2.38	4.6	20 45.4	22	8.9	+5 12.2	+0.6877	0.5572	0.0485	+66 + 3	
16 Sagittarii	6.2	+2.38	+4.5	-20 25.0	22	9.3	+5 12.6	+0.3208	0.5572	+0.0485	+38 -18	
17 Sagittarii	7.0	2.37	4.6	20 34.6	22	46.6	+5 48.6	+0.5234	0.5572	0.0497	+52 - 7	
21 Sagittarii	4.9	2.33	5.0	20 35.6	10	2 45.6	+9 13.1	+0.7535	0.5575	0.0562	+69 + 8	
B. A. C. 6287	5.7	2.27	4.7	18 47.4	4	59.6	+11 48.9	-1.0559	0.5576	0.0612	-42 -90	
B. A. C. 6386	7.3	2.19	6.2	20 22.8	12	59.5	4 27.5	+1.2000	0.5580	0.0758	+70 +45	
Lalande 35497	6.4	+2.09	+6.6	-19 23.2	19	53.8	+2 12.8	+0.7002	0.5583	+0.0882	+71 + 3	
B. A. C. 6536	5.5	2.06	6.8	19 26.6	22	15.6	+4 29.7	+0.9727	0.5583	0.0924	+71 +22	
δ Sagittarii	4.9	1.99	7.1	19 7.6	11	2 30.3	+8 35.8	+1.0413	0.5584	0.0998	+71 +27	
ρ^1 Sagittarii	3.9	1.97	6.9	18 1.9	4	21.4	+10 23.2	+0.0639	0.5584	0.1030	+28 -33	
ρ^2 Sagittarii	6.1	1.97	7.1	18 29.4	4	25.3	+10 26.8	+0.5572	0.5585	0.1031	+60 - 5	
B. A. C. 6658	7.3	+1.93	+7.4	-18 33.4	7	15.0	-10 49.2	+0.9258	0.5585	+0.1080	+71 +18	
B. A. C. 6710	6.0	1.87	7.6	18 27.0	11	18.9	6 53.6	+1.2621	0.5585	0.1148	+72 +53	
σ Sagittarii	5.6	1.83	7.1	16 31.1	13	0.3	5 15.8	-0.5846	0.5586	0.1176	- 5 -78	
ϵ^2 Sagittarii	5.0	1.82	7.1	16 21.3	13	49.3	4 28.4	-0.6614	0.5586	0.1190	-10 -87	
σ Sagittarii	5.0	1.71	7.4	16 45.1	20	49.3	+2 17.3	-0.4214	0.5586	0.1303	+ 5 -64	
B. A. C. 6992	6.2	+1.58	+7.8	-15 5.7	12	7 10.0	11 43.2	+0.3205	0.5588	+0.1461	+49 -18	
δ Capricorni	3.4	1.58	7.9	15 5.5	7	16.4	-11 37.0	+0.3329	0.5588	0.1463	+49 -18	
B. A. C. 7087	6.2	1.50	7.8	14 3.6	13	15.1	- 5 50.6	+0.1552	0.5590	0.1549	+39 -28	
ν Aquarii	4.6	1.29	7.7	11 46.2	13	5 17.4	+9 38.9	+0.4385	0.5597	0.1757	+59 -12	
14 Aquarii	6.9	1.25	7.0	9 37.5	8	20.7	-11 24.1	-1.2251	0.5600	0.1793	-45 -90	
B. A. C. 7408	6.9	+1.21	+7.2	- 9 44.8	10	54.2	- 8 55.9	-0.6369	0.5602	+0.1822	- 1 -82	
17 Aquarii	6.4	1.21	7.2	9 44.4	11	20.4	- 8 30.5	-0.5642	0.5603	0.1827	+ 3 -74	
19 Aquarii	5.7	1.20	7.3	10 10.1	12	21.6	7 31.5	+0.0622	0.5588	0.1833	+37 -32	
ξ Aquarii	4.8	1.13	6.8	8 17.8	18	1.2	2 3.5	-0.7936	0.5610	0.1897	-10 -90	
B. A. C. 7562	5.5	1.10	7.3	9 29.4	21	14.1	+1 2.8	+1.0381	0.5614	0.1928	+81 +24	
ϵ^1 Capricorni	5.2	+1.09	+7.3	- 9 34.1	21	16.3	+1 4.9	+1.0910	0.5614	+0.1928	+80 +31	
30 Aquarii	5.6	1.00	6.6	6 59.9	14	5 29.2	+9 0.5	+0.1258	0.5626	0.2000	+42 -29	
B. A. C. 7690	7.0	0.99	6.3	5 50.1	6	44.9	+10 13.8	-0.8002	0.5629	0.2010	- 9 -90	
B. A. C. 7704	7.3	0.98	6.4	6 18.6	7	28.2	+10 55.6	-0.1731	0.5630	0.2015	+25 -47	
B. A. C. 7744	6.3	0.96	6.1	5 12.4	9	43.9	-10 53.4	-0.8308	0.5634	0.2032	-11 -90	
B. A. C. 7752	6.7	+0.96	+6.0	- 4 56.4	10	14.2	10 24.1	-0.9973	0.5635	+0.2036	-22 -90	
44 Aquarii	5.9	0.94	6.3	5 52.8	11	40.6	9 0.7	+0.2454	0.5638	0.2046	+50 -23	
51 Aquarii	5.8	0.91	6.1	5 20.2	14	48.0	5 59.9	+0.3393	0.5644	0.2066	+56 -18	
κ Aquarii	5.5	0.85	5.9	4 44.2	20	51.8	0 8.7	+0.9978	0.5658	0.2101	+85 +21	
Lalande 44337	6.3	0.84	5.8	4 4.0	22	12.4	+1 9.0	+0.6068	0.5662	0.2107	+76 - 4	
3 Piscium	6.5	+0.77	+4.8	- 0 20.6	15	6 57.7	+9 35.8	-1.2537	0.5682	+0.2134	-40 -90	
κ Piscium	5.0	0.69	4.2	+ 0 42.9	18	25.8	- 3 20.5	+0.1641	0.5723	0.2159	+46 -28	
9 Piscium	6.6	0.69	4.3	0 34.8	18	34.1	- 3 12.4	+0.3279	0.5724	0.2159	+56 -19	
15 Piscium	6.6	0.66	4.1	0 46.0	22	7.7	+0 13.5	+0.9095	0.5736	0.2158	+90 +14	
16 Piscium	5.6	0.66	4.0	1 33.2	22	31.6	+0 36.6	+0.2164	0.5738	0.2158	+49 -25	
λ Piscium	4.7	+0.64	+3.9	+ 1 14.2	16	0 57.8	+2 57.6	+1.0557	0.5747	+0.2156	+90 +25	

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

APRIL.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S</i>
		$\Delta\alpha$	$\Delta\delta$								
19 Piscium	5.2	+0.64	+ 3.6	+ 2 56.3	16 2 49.5	+ 4 45.2	-0.2264	0.5753	+0.2153	+24	-49
22 Piscium	5.9	0.62	+ 3.6	2 22.9	5 12.4	+ 7 3.0	+0.8361	0.5763	0.2148	+90	+10
NEW MOON.											
13 Tauri	5.4	0.74	- 1.9	19 23.0	20 1 19.1	- 0 24.9	-0.3583	0.6093	0.0881	+16	-44
14 Tauri	6.4	+0.75	- 1.7	+19 21.1	1 52.6	+ 0 7.2	-0.2792	0.6108	+0.0869	+21	-39
B. A. C. 1242	6.6	0.80	2.3	19 55.3	8 29.4	+ 6 27.9	-0.3198	0.6091	0.0716	+18	-40
ω^1 Tauri	5.8	0.82	2.7	19 20.8	11 34.3	+ 9 25.2	+0.4581	0.6089	0.0640	+67	+ 4
ω^2 Tauri	4.6	0.85	2.7	20 20.1	14 39.6	+12 22.9	-0.3351	0.6086	0.0566	+17	-40
53 Tauri	5.5	0.86	2.7	20 54.1	15 28.8	-10 49.9	-0.8533	0.6085	0.0546	-14	-69
B. A. C. 1373	5.7	+0.89	- 2.8	+21 23.9	18 45.3	- 7 41.3	-1.1822	0.6080	+0.0467	-43	-69
W. B. 4 ^b 650	5.8	0.92	3.3	20 29.1	22 42.3	- 3 54.0	-0.1085	0.6071	0.0371	+30	-24
ι Tauri	4.7	1.01	3.8	21 26.8	21 8 16.1	+ 5 16.6	-0.8282	0.6045	0.0140	-12	-69
ι Tauri	5.4	1.02	4.3	20 17.2	10 7.2	+ 7 3.3	+0.3573	0.6042	0.0096	+59	+ 4
105 Tauri	5.8	1.03	4.0	21 34.4	10 8.5	+ 7 4.5	-0.9326	0.6038	0.0095	-20	-68
107 Tauri	6.5	+1.02	- 4.7	+19 43.8	10 31.7	+ 7 26.7	+0.9197	0.6037	+0.0086	+90	+37
σ Tauri	4.8	1.11	4.4	21 51.1	17 49.9	- 9 32.6	-1.2150	0.6006	-0.0088	-48	-68
ζ Tauri	3.0	1.13	5.0	21 4.8	21 47.1	- 5 44.7	-0.4922	0.5988	0.0180	+ 8	-47
B. A. C. 1867	7.2	1.20	5.8	20 16.4	22 4 1.2	+ 0 14.7	+0.1682	0.5955	0.0322	+47	- 9
χ^1 Orionis	4.6	1.20	5.8	20 15.4	4 27.3	+ 0 39.8	+0.1715	0.5955	0.0332	+47	- 9
χ^2 Orionis	5.8	+1.20	- 6.0	+19 43.7	4 40.7	+ 0 52.6	+0.6994	0.5951	-0.0337	+90	+21
χ^3 Orionis	5.1	1.24	6.3	19 41.4	8 5.4	+ 4 9.3	+0.6117	0.5932	0.0413	+82	+15
χ^4 Orionis	4.8	1.24	6.2	20 8.4	8 16.2	+ 4 19.8	+0.1480	0.5931	0.0416	+45	-11
68 Orionis	5.6	1.28	6.5	19 48.6	11 32.9	+ 7 28.8	+0.3347	0.5911	0.0488	+58	- 1
71 Orionis	5.1	1.28	6.9	19 11.3	12 42.1	+ 8 35.4	+0.9127	0.5904	0.0514	+90	+32
15 Gemi. (2 ^d star)	7.0	+1.35	- 6.8	+20 50.9	17 57.3	-10 21.5	-1.0839	0.5870	-0.0624	-25	-69
16 Geminorum	6.8	1.35	6.9	20 33.2	18 1.8	-10 17.1	-0.7865	0.5870	0.0626	- 9	-69
ν Geminorum	4.0	1.35	7.0	20 16.4	18 27.1	- 9 52.8	-0.5258	0.5867	0.0634	+ 7	-53
22 Geminorum	7.2	1.36	7.3	19 30.2	20 48.6	- 7 36.6	+0.1076	0.5865	0.0682	+43	-15
W. B. 7 ^b 685	6.2	1.61	10.0	17 17.8	23 21 9.8	- 8 8.6	+0.1724	0.5664	0.1127	+47	-16
f Geminorum	5.2	+1.65	-10.1	+17 53.8	24 0 32.1	- 4 53.5	-0.8454	0.5658	-0.1180	-12	-72
1 Cancri	5.9	1.72	11.3	16 3.1	8 23.8	+ 2 41.9	+0.1122	0.5595	0.1297	+43	-21
5 Cancri	6.3	1.75	11.2	16 43.5	10 25.7	+ 4 39.6	-0.8626	0.5581	0.1326	-13	-73
29 Cancri	5.9	1.86	12.7	14 32.1	22 58.2	- 7 13.0	-0.3200	0.5494	0.1488	-19	-49
A ¹ Cancri	5.6	1.91	13.6	13 1.9	25 5 52.9	- 0 31.8	+0.2224	0.5448	0.1563	+50	-19
A ² Cancri	5.8	+1.94	-13.9	+12 28.2	7 40.3	+ 1 12.2	+0.5406	0.5437	-0.1582	+73	- 2
60 Cancri	5.7	1.97	14.2	12 0.0	11 59.9	+ 5 23.5	+0.3485	0.5410	0.1625	+57	-13
α Cancri	4.3	1.98	14.2	12 14.2	13 13.9	+ 6 35.1	-0.1054	0.5403	0.1636	+30	-38
κ Cancri	5.0	2.02	14.8	11 3.8	17 45.6	+10 58.2	+0.4018	0.5376	0.1677	+61	-11
ω Leonis	5.6	2.10	15.7	9 29.0	26 4 1.0	- 3 5.5	+0.3380	0.5321	0.1758	+57	-15
3 Leonis	6.0	+2.10	-16.0	+ 8 37.0	4 2.8	- 3 3.7	+1.2677	0.5321	-0.1758	+90	+50
β Leonis	5.4	2.12	15.6	10 8.9	5 45.9	- 1 23.9	-0.6869	0.5311	0.1770	- 1	-79
14 Sextantis	6.6	2.27	17.3	6 5.4	23 32.8	- 8 8.9	+0.4659	0.5235	0.1869	+66	-10
16 Sextantis	6.9	2.28	17.1	6 39.1	27 0 48.7	- 6 55.4	-0.3819	0.5230	0.1874	+16	-58
19 Sextantis	6.0	2.29	17.7	5 5.9	2 40.2	- 5 7.2	+0.9588	0.5224	0.1882	+90	+19
34 Sextantis	6.6	+2.42	-18.0	+ 4 5.7	18 17.8	+10 3.2	-0.9254	0.5179	-0.1927	-16	-86
36 Sextantis	6.6	2.44	18.4	3 0.2	19 38.4	+11 21.4	+0.0112	0.5176	0.1930	+37	-35
55 Leonis	6.0	2.49	18.8	1 15.6	28 1 14.0	- 7 12.5	+0.8431	0.5165	0.1938	+90	+10
57 Leonis	6.9	2.49	18.9	0 57.3	1 29.5	- 6 57.5	+1.1265	0.5164	0.1938	+90	+31
β^2 Leonis	6.2	2.52	18.9	0 31.6	5 27.0	- 3 6.7	+0.8310	0.5158	0.1941	+90	+10
β^5 Leonis	5.5	+2.56	-18.8	+ 0 27.8	10 51.9	+ 2 8.9	-0.1493	0.5152	-0.1942	+28	-45
ϵ Leonis	5.0	2.64	19.4	- 2 27.8	19 43.8	+10 45.6	+1.3563	0.5145	0.1936	+88	+65
χ Virginis	4.7	2.94	18.4	7 27.4	30 8 36.7	- 1 24.2	-0.0691	0.5173	0.1810	+31	-40
28 Virginis	7.0	2.95	18.2	6 57.7	10 3.0	+ 0 0.3	-0.8789	0.5175	0.1803	-14	-90
ψ Virginis	5.0	3.01	18.0	9 0.4	16 36.3	+ 6 21.6	+0.2245	0.5189	0.1761	+47	-24
γ Virginis	5.2	+3.07	-17.5	-10 13.0	23 43.8	-10 43.2	+0.3303	0.5206	-0.1712	+53	-18

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MAY.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'n's from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m					
50 Virginis	6.3	+3.07	-17.4	9 48.4	1 0 42.5	-9 46.3	-0.2919	0.5204	-0.1704	+17	-55
56 Virginis	7.0	3.10	17.2	9 51.0	3 19.5	-7 13.9	-0.6865	0.5215	0.1684	-4	-88
58 Virginis	7.0	3.10	17.0	10 1.8	4 44.5	5 51.3	-0.7250	0.5219	0.1673	-7	-90
62 Virginis	7.0	3.12	16.9	10 47.3	6 14.4	-4 24.0	-0.1304	0.5223	0.1668	+26	-44
α Virginis	1.2	3.12	16.7	10 39.0	8 46.1	-1 56.8	-0.7028	0.5229	0.1639	-6	90
γ Virginis	5.5	+3.15	-16.8	12 11.9	9 33.4	-1 10.8	+0.8893	0.5232	-0.1633	+77	+14
86 Virginis	6.0	3.20	15.6	11 56.1	19 29.1	+8 27.3	-0.9792	0.5262	0.1541	-25	-90
B. A. C. 4896	6.6	3.42	11.3	17 22.9	3 4 28.3	-7 33.4	+0.5931	0.5375	0.1153	+63	-3
10 Libræ	6.5	3.44	11.3	17 57.0	4 35.8	-7 26.2	+1.2103	0.5376	0.1151	+72	+43
26 Libræ	6.5	3.44	9.5	17 24.1	15 42.8	+3 20.0	-0.5915	0.5414	0.0993	-7	-79
28 Libræ	6.0	+3.45	9.1	17 48.1	18 46.7	+6 18.1	-0.4449	0.5424	-0.0946	0	-66
B. A. C. 5109	5.4	3.49	8.0	19 20.1	4 0 24.3	+11 45.0	+0.7441	0.5443	0.0860	+71	+6
41 Libræ	5.7	3.49	7.4	18 58.7	3 25.5	-9 19.5	+0.0960	0.5452	0.0812	+28	-31
κ Libræ	5.0	3.50	7.2	19 21.6	4 52.7	-7 55.2	+0.4021	0.5457	0.0788	+47	-14
λ Libræ	5.0	3.50	6.2	19 52.4	10 17.7	-2 40.7	+0.5652	0.5473	0.0700	+58	-4
47 Libræ	6.4	+3.48	-6.1	-19 5.5	11 6.2	-1 53.8	-0.3532	0.5475	-0.0687	+3	59
β^1 Scorpii	2.7	3.48	5.2	19 32.2	16 2.2	+2 52.6	-0.1815	0.5489	0.0604	+11	-47
ω^1 Scorpii	4.1	3.50	5.0	20 24.2	16 40.0	+3 29.2	+0.7353	0.5491	0.0593	+69	+6
ω^2 Scorpii	4.6	3.50	4.9	20 36.2	16 56.6	+3 45.3	+0.9414	0.5492	0.0589	+69	+20
ν Scorpii	+2	3.46	+7	19 12.3	19 8.1	+5 52.5	-0.7257	0.5497	0.0551	-21	-90
ψ Ophiuchi	4.6	+3.47	-3.6	-19 48.4	5 0 48.7	+11 22.0	-0.3462	0.5511	-0.0452	0	58
ω Ophiuchi	+7	3.49	2.7	21 15.3	4 32.3	-9 1.8	+1.0918	0.5520	0.0386	+69	+32
B. A. C. 5580	5.7	3.44	2.1	19 44.1	9 6.9	-4 36.2	-0.7384	0.5529	0.0305	-24	-90
B. A. C. 5758	6.6	3.43	-0.1	21 25.7	20 20.8	+6 15.3	+0.8915	0.5549	-0.0100	+68	+17
ε Ophiuchi	4.5	3.38	+1.4	21 0.4	6 3 10.1	-11 9.1	+0.4034	0.5557	+0.0027	+39	-13
58 Ophiuchi	5.0	+3.32	+3.4	21 38.1	13 28.3	-1 11.6	+1.2132	0.5567	+0.0218	+68	+48
B. A. C. 6098	6.0	3.22	4.7	20 44.1	22 16.6	+7 19.0	+0.4967	0.5570	0.0382	+49	8
μ Sagittarii	4.0	3.18	5.6	21 5.0	7 3 22.0	-11 45.8	+1.0913	0.5571	0.0476	+69	+33
15 Sagittarii	5.6	3.17	5.6	20 45.4	4 2.3	-11 6.9	+0.7686	0.5571	0.0488	+69	+8
16 Sagittarii	6.2	3.16	5.5	20 25.0	4 2.7	-11 6.5	+0.3999	0.5571	0.0488	+43	-14
17 Sagittarii	7.0	+3.16	+5.5	-20 34.5	4 40.2	-10 30.3	+0.6034	0.5571	+0.0500	+59	-2
21 Sagittarii	4.9	3.13	6.3	20 35.6	8 40.6	-6 38.1	+0.8362	0.5570	0.0573	+69	+13
B. A. C. 6287	5.7	3.07	6.2	18 47.4	10 55.6	-4 27.6	-0.9820	0.5570	0.0614	-36	-90
Lalande 35497	6.4	2.91	8.6	19 23.2	8 1 57.9	+10 4.3	+0.7874	0.5562	0.0881	+71	+9
B. A. C. 6536	5.5	2.89	8.9	19 26.6	4 21.3	-11 37.2	+1.0624	0.5560	0.0921	+71	+29
d Sagittarii	4.9	+2.83	+9.4	19 7.6	8 39.3	-7 27.8	+1.1327	0.5557	+0.0994	+71	+36
ρ^1 Sagittarii	3.9	2.79	9.3	18 1.9	10 31.9	-5 39.0	+0.1477	0.5556	0.1026	+33	-28
ρ^2 Sagittarii	6.1	2.80	9.4	18 29.4	10 35.8	-5 35.3	+0.6449	0.5556	0.1027	+67	0
B. A. C. 6658	7.3	2.77	9.8	18 33.4	13 28.1	-2 48.7	+1.0173	0.5553	0.1074	+71	+25
ϵ^1 Sagittarii	5.6	2.67	9.8	16 31.1	19 18.8	+2 50.2	-0.5063	0.5547	0.1168	-1	-70
ϵ^2 Sagittarii	5.0	+2.65	+9.9	-16 21.2	20 8.6	+3 38.3	-0.5839	0.5547	+0.1181	-5	-78
B. A. C. 6746	5.5	2.64	9.6	15 41.8	20 37.7	+4 6.5	-1.2258	0.5546	0.1189	-53	-90
g Sagittarii	5.0	2.56	10.4	15 45.1	9 3 16.2	+10 31.7	-0.3410	0.5540	0.1291	+10	-58
B. A. C. 6992	6.2	2.42	11.2	15 5.6	13 49.7	-3 15.9	+0.4071	0.5531	0.1445	+54	-14
β Capricorni	3.4	2.42	11.2	15 5.5	13 56.3	-3 9.5	+0.4198	0.5531	0.1446	+54	-13
B. A. C. 7087	6.2	+2.33	+11.4	14 3.5	20 3.4	+2 45.3	+0.2393	0.5526	+0.1530	+44	23
ν Aquarii	4.6	2.10	11.6	11 46.2	10 12 31.1	-5 19.8	+0.5233	0.5519	0.1731	+65	-8
14 Aquarii	6.9	2.04	11.0	9 37.5	15 39.7	-2 17.5	-1.1645	0.5519	0.1765	-39	-90
B. A. C. 7408	6.9	2.01	11.1	9 44.6	18 17.9	+0 15.4	-0.5683	0.5519	0.1792	+2	-75
17 Aquarii	6.4	2.00	11.1	9 44.3	18 44.7	+0 41.4	-0.4953	0.5519	0.1797	+6	-68
19 Aquarii	5.7	+1.99	+11.4	-10 10.0	19 47.8	+1 42.4	+0.1401	0.5520	+0.1807	+41	28
ξ Aquarii	4.8	1.91	10.9	8 17.7	11 1 37.9	+7 20.8	-0.7302	0.5522	0.1864	-6	90
B. A. C. 7562	5.5	1.87	10.8	9 29.3	4 56.9	+10 33.2	+1.1281	0.5523	0.1894	+81	+32
ϵ^1 Capricorni	5.2	1.87	11.4	9 34.0	4 59.2	+10 35.4	+1.1806	0.5524	0.1893	+80	+36
30 Aquarii	5.6	1.76	10.8	6 59.9	13 28.1	-5 12.7	+0.1984	0.5532	0.1962	+46	-25
B. A. C. 7690	7.0	+1.74	+10.4	-5 50.0	14 46.3	-3 57.1	-0.7426	0.5533	+0.1972	-5	-90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MAY.

THE STAR'S					AT CONJUNCTION IN R. A.							Limiting Parallels.	
Name.	Mag.	Red'us from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S.</i>		
		$\Delta\alpha$	$\Delta\delta$										
		<i>s</i>	<i>"</i>	<i>° ' "</i>	<i>d h m</i>	<i>h m</i>				<i>°</i>	<i>°</i>		
B. A. C. 7704	7.3	+1.73	+10.6	- 6 18.6	11 15 31.0	- 3 13.9	-0.1062	0.5534	+0.1977	+29	-42		
B. A. C. 7744	6.3	1.70	10.2	5 12.4	17 51.3	- 0 58.3	-0.7750	0.5535	0.1993	- 7	-90		
B. A. C. 7752	6.7	1.70	10.2	4 56.4	18 22.7	- 0 27.9	-0.9441	0.5538	0.1997	-18	-90		
44 Aquarii	5.9	1.68	10.5	5 52.7	19 51.9	+ 0 58.4	+0.3179	0.5541	0.2006	+54	-19		
51 Aquarii	5.8	1.64	10.3	5 20.1	23 5.6	+ 4 5.5	+0.4111	0.5546	0.2026	+62	-13		
κ Aquarii	5.5	+1.56	+10.0	- 4 44.2	12 5 21.9	+10 9.3	+1.0773	0.5558	+0.2059	+85	+27		
Lalande 44337	6.3	1.55	9.8	4 3.9	6 45.3	+11 29.8	+0.6796	0.5561	0.2065	+84	+ 1		
3 Piscium	6.5	1.45	8.6	- 0 20.6	15 48.4	- 3 45.5	-1.2163	0.5585	0.2097	-39	-90		
κ Piscium	5.0	1.33	8.1	+ 0 42.9	13 3 39.8	+ 7 41.5	+0.2183	0.5622	0.2116	+49	-25		
9 Piscium	6.6	1.33	8.0	0 34.8	3 48.3	+ 7 49.7	+0.3843	0.5624	0.2116	+60	-16		
15 Piscium	6.6	+1.28	+ 7.8	+ 0 46.1	7 28.9	+11 22.7	+0.9723	0.5638	+0.2116	+90	+19		
16 Piscium	5.6	1.28	7.5	1 33.3	7 53.5	+11 46.5	+0.2684	0.5640	0.2116	+52	-22		
γ Piscium	4.7	1.25	7.5	1 14.2	10 24.4	- 9 47.9	+1.1183	0.5650	0.2114	+90	+30		
19 Piscium	5.2	1.25	7.0	2 56.4	12 19.7	- 7 56.6	-0.1833	0.5658	0.2111	+26	-47		
22 Piscium	5.9	1.22	7.1	2 22.9	14 47.0	- 5 34.5	+0.8922	0.5668	0.2107	+90	+14		
45 Piscium	6.9	+1.11	+ 5.1	+ 7 8.7	14 5 28.1	+ 8 35.4	-0.7999	0.5739	+0.2053	- 8	-83		
51 Piscium	5.7	1.08	5.2	6 24.6	8 20.6	+11 21.7	+0.5189	0.5754	0.2036	+70	- 7		
100 Piscium	6.8	0.93	2.4	12 3.2	15 10 24.3	-11 32.7	-0.0358	0.5809	0.1793	+35	-34		
π Piscium	5.6	0.92	2.4	11 38.2	11 19.5	-10 39.5	+0.5387	0.5904	0.1781	+72	- 3		
B. A. C. 490	7.5	0.92	+ 2.3	+11 34.4	11 33.2	-10 26.4	+0.6408	0.5906	+0.1779	+83	+ 3		
NEW MOON.													
B. A. C. 1867	7.2	+1.00	- 6.2	+20 16.4	19 14 0.6	-11 57.8	+0.1430	0.6043	-0.0328	+45	-11		
χ^1 Orionis	4.6	1.00	6.2	20 15.4	14 26.0	-11 33.4	+0.1462	0.6041	0.0338	+45	-11		
χ^2 Orionis	5.8	1.00	6.3	19 43.7	14 39.1	-11 20.9	+0.6681	0.6039	0.0343	+90	+19		
χ^3 Orionis	5.1	+1.02	- 6.5	+19 41.4	17 58.4	- 8 9.5	+0.5806	0.6022	-0.0420	+78	+13		
χ^4 Orionis	4.8	1.03	6.5	20 8.4	18 9.0	- 7 59.3	+0.1219	0.6021	0.0425	+44	-12		
68 Orionis	5.6	1.05	6.8	19 48.6	21 20.5	- 4 55.5	+0.3062	0.6003	0.0497	+55	- 3		
71 Orionis	5.1	1.05	7.0	19 11.2	22 28.2	- 3 50.4	+0.8766	0.5996	0.0522	+90	+30		
15 Gemi. (2 ^d star)	7.0	1.09	7.0	20 50.9	20 3 34.3	+ 1 3.6	-1.0358	0.5964	0.0634	-33	-69		
16 Geminorum	6.8	+1.09	- 7.1	+20 33.2	3 38.7	+ 1 7.8	-0.8026	0.5964	-0.0636	-10	-69		
ν Geminorum	4.0	1.10	6.8	20 16.4	4 3.2	+ 1 31.4	-0.5447	0.5962	0.0645	+ 6	-55		
22 Geminorum	7.2	1.11	7.4	19 30.2	6 20.8	+ 3 43.6	+0.0805	0.5947	0.0694	+41	-17		
W. B. 7 th 685	6.2	1.27	9.6	17 17.8	21 5 59.2	+ 2 28.7	+0.1429	0.5773	0.1145	+45	-18		
f Geminorum	5.2	1.31	9.6	17 53.8	9 15.5	+ 5 37.8	-0.8612	0.5746	0.1200	-13	-72		
1 Cancri	5.9	+1.36	-10.6	+16 3.1	16 53.4	-11 0.6	+0.0836	0.5686	-0.1318	+41	-23		
5 Cancri	6.3	1.39	10.5	16 43.5	18 51.7	- 9 6.5	-0.8782	0.5671	0.1347	-14	-73		
29 Cancri	5.9	1.48	11.8	14 32.1	22 7 2.9	+ 2 39.5	-0.3425	0.5575	0.1507	+17	-50		
A ¹ Cancri	5.6	1.54	12.5	13 1.9	13 46.4	+ 9 9.4	+0.1936	0.5525	0.1584	+48	-20		
A ² Cancri	5.8	1.55	12.8	12 28.2	15 31.1	+10 50.6	+0.5078	0.5517	0.1603	+70	- 4		
60 Cancri	5.7	+1.59	-13.1	+12 0.1	19 44.0	- 9 4.8	+0.3187	0.5483	-0.1645	+56	-15		
α Cancri	4.3	1.60	13.1	12 14.2	20 56.1	- 7 55.1	-0.1293	0.5474	0.1656	+29	-39		
κ Cancri	5.0	1.64	13.6	11 3.8	23 1 21.1	- 3 38.6	+0.3724	0.5444	0.1697	+59	-12		
ω Leonis	5.6	1.73	14.4	9 29.0	11 22.4	+ 6 3.6	+0.3109	0.5379	0.1775	+55	-17		
3 Leonis	6.0	1.72	14.7	8 37.0	11 24.1	+ 6 5.3	+1.2305	0.5379	0.1776	+90	+45		
h Leonis	5.4	+1.75	-14.2	+10 8.9	13 5.0	+ 7 42.9	-0.7024	0.5369	-0.1787	- 2	-80		
14 Sextantis	6.6	1.91	15.9	6 5.4	24 6 31.4	+ 0 37.3	+0.4416	0.5276	0.1883	+64	-11		
16 Sextantis	6.9	1.93	15.7	6 39.1	7 46.0	+ 1 49.6	-0.3983	0.5270	0.1887	+15	-59		
19 Sextantis	6.0	1.96	16.2	5 6.0	9 35.8	+ 3 36.1	+0.9304	0.5262	0.1894	+90	+17		
34 Sextantis	6.6	2.10	16.6	4 5.7	25 1 0.2	- 5 26.8	-0.9353	0.5204	0.1935	-16	-86		
36 Sextantis	6.6	+2.11	-17.0	+ 3 0.2	2 19.9	- 4 9.5	-0.0055	0.5199	-0.1936	+36	-36		
55 Leonis	6.0	2.18	17.5	1 15.6	7 51.8	+ 1 12.8	+0.8220	0.5184	0.1943	+90	+ 9		
57 Leonis	6.9	2.18	17.6	0 57.4	8 7.1	+ 1 27.6	+1.1037	0.5183	0.1943	+90	+29		
β^1 Leonis	6.2	2.21	17.7	0 31.6	12 2.3	+ 5 16.1	+0.8113	0.5174	0.1945	+90	+ 8		
β^2 Leonis	5.5	2.27	17.5	+ 0 27.8	17 24.5	+10 29.0	-0.1635	0.5163	0.1944	+27	-46		
ϵ Leonis	5.0	+2.37	-18.2	- 2 27.7	26 2 12.7	- 4 57.9	+1.3374	0.5150	-0.1936	+88	+59		

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MAY.

THE STAR'S					AT CONJUNCTION IN R. A.							Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S.</i>		
		$\Delta\alpha$	$\Delta\delta$										
		<i>s</i>	<i>"</i>	<i>°</i>	<i>d</i> <i>h</i> <i>m</i>	<i>h</i> <i>m</i>				<i>°</i>	<i>°</i>		
χ Virginis	4.7	+2.78	-17.7	- 7 27.4	27 14 59.5	+ 6 46.1	-0.0756	0.5161	-0.1805	+31	-41		
28 Virginis	7.0	2.79	17.4	6 57.6	16 25.8	+ 8 9.9	-0.8834	0.5164	0.1797	-14	-90		
ψ Virginis	5.0	2.88	17.5	9 0.4	22 59.1	- 9 28.1	+0.2182	0.5177	0.1757	+47	-24		
γ Virginis	5.2	2.97	17.2	10 12.9	28 6 6.7	- 2 32.8	+0.3162	0.5192	0.1707	+52	-19		
50 Virginis	6.3	2.97	17.0	9 48.4	7 5.6	- 1 35.6	-0.2967	0.5195	0.1699	+17	-54		
56 Virginis	7.0	+2.99	-16.7	- 9 51.0	9 42.7	+ 0 56.9	-0.6904	0.5201	-0.1679	- 5	-89		
58 Virginis	7.0	3.01	16.6	10 1.8	11 7.9	+ 2 19.6	-0.7291	0.5205	0.1668	- 7	-90		
62 Virginis	7.0	3.04	16.5	10 47.3	12 37.7	+ 3 47.0	-0.1350	0.5210	0.1656	+25	-44		
α Virginis	1.2	3.06	16.3	10 39.0	15 9.5	+ 6 14.2	-0.7063	0.5217	0.1635	- 6	-90		
ι Virginis	5.5	3.08	16.6	12 11.9	15 56.9	+ 7 0.2	+0.8831	0.5219	0.1628	+78	+14		
86 Virginis	6.0	+3.18	-15.4	-11 56.1	29 1 53.1	- 7 21.2	-0.9822	0.5250	-0.1537	-25	-90		
B. A. C. 4896	6.6	3.56	11.8	17 22.9	30 10 51.8	+ 0 37.7	+0.5847	0.5375	0.1153	+64	+ 4		
10 Libræ	6.5	3.58	11.8	17 57.1	10 59.4	+ 0 45.0	+1.2023	0.5375	0.1152	+72	+43		
26 Libræ	6.5	3.64	9.8	17 24.1	22 5.0	+11 29.7	-0.5977	0.5419	0.0995	- 8	-79		
28 Libræ	6.0	3.67	9.3	17 48.1	31 1 8.2	- 9 32.9	-0.4514	0.5430	0.0949	0	-66		
B. A. C. 5109	5.4	+3.74	- 8.4	-19 20.1	6 44.7	- 4 7.1	+0.7340	0.5451	-0.0863	+71	+ 5		
41 Libræ	5.7	3.74	7.9	18 58.7	9 45.2	- 1 12.3	+0.0867	0.5463	0.0815	+28	-31		
κ Libræ	5.0	3.76	7.6	19 21.6	11 12.0	+ 0 11.7	+0.3920	0.5468	0.0792	+46	-15		
ζ Libræ	5.0	3.80	6.6	19 52.4	16 35.5	+ 5 24.6	+0.5543	0.5487	0.0704	+57	- 5		
47 Libræ	6.4	3.78	6.4	19 5.5	17 23.7	+ 6 11.3	-0.3627	0.5488	0.0691	+ 2	-60		
β Scorpii	2.7	+3.81	- 5.4	-19 32.2	22 18.1	+10 56.1	-0.1923	0.5506	-0.0608	+11	-48		
ω Scorpii	4.1	3.84	5.3	20 24.2	22 55.8	+11 32.6	+0.7235	0.5508	0.0597	+70	+ 5		
ω^2 Scorpii	4.6	+3.84	- 5.3	-20 36.2	23 12.2	+11 48.4	+0.9276	0.5509	-0.0593	+69	+19		

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ν Scorpii	4.2	+3.81	- 4.8	-19 12.3	1 1 22.9	-10 5.2	-0.7357	0.5513	-0.0555	-20	-90
ψ Ophiuchi	4.6	3.85	3.7	19 48.4	7 1.4	- 4 37.7	-0.3586	0.5533	0.0456	0	-59
ω Ophiuchi	4.7	3.90	3.0	21 15.3	10 43.6	- 1 3.1	+1.0747	0.5543	0.0391	+69	+31
B. A. C. 5580	5.7	3.86	2.0	19 44.1	15 16.3	+ 3 20.6	-0.7517	0.5555	0.0308	-24	-90
B. A. C. 5758	6.6	+3.91	- 0.1	-21 25.7	2 2 24.9	- 9 53.1	+0.8709	0.5579	-0.0105	+69	+15
ξ Ophiuchi	4.5	3.90	+ 1.7	21 0.4	9 10.7	- 3 21.0	+0.3821	0.5590	+0.0024	+38	-15
58 Ophiuchi	5.0	3.89	3.9	21 38.1	19 23.7	+ 6 31.3	+1.1870	0.5600	0.0215	+68	+44
B. A. C. 6098	6.0	3.83	5.6	20 44.1	3 4 7.3	- 9 2.9	+0.4694	0.5605	0.0381	+47	-10
μ Sagittarii	4.0	3.82	6.6	21 5.0	9 10.1	- 4 10.4	+1.0611	0.5606	0.0477	+69	+30
15 Sagittarii	5.6	+3.81	+ 6.7	-20 45.4	9 50.0	- 3 31.9	+0.7387	0.5606	+0.0488	+69	+ 6
16 Sagittarii	6.2	3.80	6.7	20 24.9	9 50.5	- 3 31.4	+0.3710	0.5606	0.0488	+41	-15
17 Sagittarii	7.0	3.80	6.8	20 34.5	10 27.6	- 2 55.6	+0.5740	0.5606	0.0499	+56	- 4
21 Sagittarii	4.9	3.78	7.5	20 35.5	14 26.1	+ 0 54.8	+0.8050	0.5605	0.0573	+69	+11
B. A. C. 6287	5.7	3.72	7.8	18 47.4	16 39.9	+ 3 4.0	-1.0110	0.5604	0.0614	-38	-90
B. A. C. 6386	7.3	+3.71	+ 9.5	-20 22.8	4 0 39.9	+10 47.8	+1.2537	0.5599	+0.0759	+70	+54
Lalande 35497	6.4	3.63	10.6	19 23.2	7 35.7	- 6 30.5	+0.7506	0.5592	0.0882	+71	+ 7
B. A. C. 6536	5.5	3.62	11.0	19 26.5	9 58.2	- 4 12.9	+1.0250	0.5590	0.0923	+71	+26
δ Sagittarii	4.9	3.58	11.6	19 7.6	14 14.8	- 0 4.9	+1.0942	0.5585	0.0996	+71	+32
ρ^1 Sagittarii	3.9	3.54	11.7	18 1.8	16 6.7	+ 1 43.2	+1.1089	0.5582	0.1027	+31	-30
ρ^2 Sagittarii	6.1	+3.55	+11.8	-18 29.3	16 10.6	+ 1 47.0	+0.6059	0.5582	+0.1028	+64	- 2
B. A. C. 6658	7.3	3.52	12.3	18 33.3	19 2.0	+ 4 32.6	+0.9773	0.5578	0.1075	+71	+22
ϵ^1 Sagittarii	5.6	3.43	12.7	16 31.0	5 0 51.4	+10 10.1	-0.5489	0.5569	0.1169	- 3	-74
ϵ^2 Sagittarii	5.0	3.42	12.8	16 21.2	1 41.0	+10 58.1	-0.6270	0.5568	0.1182	- 8	-82
B. A. C. 6746	5.5	3.40	12.6	15 41.8	2 10.1	+11 26.3	-1.2695	0.5567	0.1190	-60	-90
γ Sagittarii	5.0	+3.34	+13.6	-15 45.0	8 47.6	- 6 9.6	-0.3876	0.5556	+0.1292	+ 7	-61
B. A. C. 6992	6.2	3.22	14.7	15 5.6	19 21.0	+ 4 2.7	+0.3593	0.5538	0.1444	+50	-17
β Capricornj	3.4	3.22	14.7	15 5.4	19 27.6	+ 4 9.1	+0.3713	0.5538	0.1445	+51	-16
B. A. C. 7087	6.2	3.19	15.2	14 3.4	6 1 35.5	+ 9 4.8	+0.1892	0.5528	0.1527	+41	-26
ν Aquarii	4.6	2.93	15.9	11 46.1	18 8.7	+ 2 5.2	+0.4700	0.5505	0.1723	+61	-11
14 Aquarii	6.9	+2.87	+15.5	- 9 37.4	21 19.1	+ 5 19.3	-1.2288	0.5501	+0.1756	-45	-90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JUNE.

THE STAR'S					AT CONJUNCTION IN R. A.							Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N.	S.		
		$\Delta\alpha$	$\Delta\delta$										
		s	"	°	d h m	h m				°	'		
B. A. C. 7408	6.9	+2.84	+15.7	- 9 44.6	6 23 58.7	+ 7 43.6	-0.6303	0.5499	+0.1783	- 1	-81		
17 Aquarii	6.4	2.83	15.7	9 44.2	7 0 25.8	+ 8 9.9	-0.5568	0.5498	0.1787	+ 3	-74		
19 Aquarii	5.7	2.83	15.8	10 9.9	1 29.6	+ 9 11.5	+0.0827	0.5497	0.1797	+38	-32		
ξ Aquarii	4.8	2.74	15.7	8 17.6	7 23.8	- 9 5.9	-0.7958	0.5492	0.1852	-10	-90		
B. A. C. 7562	5.5	2.71	16.2	9 29.2	10 45.5	- 5 50.7	+1.0765	0.5491	0.1880	+81	+27		
♄ Capricorni	5.2	+2.71	+16.2	- 9 34.0	10 47.8	- 5 48.5	+1.1320	0.5491	+0.1880	+80	+32		
30 Aquarii	5.6	2.59	15.7	6 59.8	19 24.7	+ 2 31.4	+0.1384	0.5489	0.1945	+43	-29		
B. A. C. 7690	7.0	2.58	15.4	5 49.9	20 44.2	+ 3 48.3	-0.8122	0.5489	0.1954	-10	-90		
B. A. C. 7704	7.3	2.57	15.6	6 18.5	21 29.7	+ 4 32.3	-0.1704	0.5489	0.1960	+26	-46		
B. A. C. 7744	6.3	2.54	15.3	5 12.3	23 52.6	+ 6 50.5	-0.8456	0.5490	0.1974	-12	-90		
B. A. C. 7752	6.7	+2.53	+15.3	- 4 56.3	8 0 24.6	+ 7 21.4	-1.0168	0.5490	+0.1978	-23	-90		
44 Aquarii	5.9	2.51	15.5	5 52.6	1 55.5	+ 8 49.4	+0.2573	0.5490	0.1987	+51	-22		
51 Aquarii	5.8	2.47	15.4	5 20.0	5 13.0	-11 59.6	+0.3517	0.5492	0.2005	+57	-17		
κ Aquarii	5.5	2.39	15.2	4 44.1	11 37.3	- 5 47.9	+1.0250	0.5496	0.2035	+85	+23		
Lalande 44337	6.3	2.38	15.0	4 3.8	13 2.6	- 4 25.5	+0.6228	0.5500	0.2041	+78	- 3		
3 Piscium	6.5	+2.27	+13.6	- 0 20.5	22 19.0	+ 4 32.6	-1.2965	0.5514	+0.2070	-50	-90		
κ Piscium	5.0	2.14	13.0	+ 0 43.0	9 10 29.6	- 7 41.1	+0.1561	0.5542	0.2085	+46	-28		
9 Piscium	6.6	2.13	13.0	0 34.9	10 38.6	- 7 32.3	+0.3280	0.5542	0.2085	+57	-18		
15 Piscium	6.6	2.09	12.8	0 46.2	14 25.6	- 3 52.9	+0.9217	0.5553	0.2085	+90	+16		
16 Piscium	5.6	2.08	12.6	1 33.4	14 51.0	- 3 28.4	+0.2082	0.5554	0.2084	+48	-24		
λ Piscium	4.7	+2.05	+12.3	+ 1 14.3	17 26.5	- 0 58.1	+1.0710	0.5563	+0.2082	+90	+26		
19 Piscium	5.2	2.04	11.9	2 56.4	19 25.2	+ 0 56.6	-0.2497	0.5569	0.2079	+24	-51		
22 Piscium	5.9	2.01	12.0	2 23.0	21 57.2	+ 3 23.4	-0.8428	0.5578	0.2075	+90	+11		
45 Piscium	6.9	1.87	10.1	7 8.8	10 13 6.9	- 5 58.1	-0.8718	0.5639	0.2020	-12	-83		
51 Piscium	5.7	1.83	9.6	6 24.7	16 5.1	- 3 6.2	+0.4679	0.5654	0.2003	+66	-10		
δ Piscium	4.6	+1.77	+ 8.9	+ 7 2.9	23 14.4	+ 3 48.1	+1.2408	0.5690	+0.1956	+90	+45		
100 Piscium	6.8	1.61	5.8	12 3.2	11 19 1.4	- 1 7.7	-0.0841	0.5797	0.1767	+32	-37		
π Piscium	5.6	1.60	5.8	11 38.2	19 58.3	+ 0 12.8	+0.4991	0.5803	0.1755	+69	- 5		
B. A. C. 490	7.5	1.60	5.8	11 34.5	20 12.4	+ 0 0.7	+0.6029	0.5804	0.1752	+78	+ 1		
19 Arietis	6.2	1.50	3.5	14 49.0	12 10 49.5	- 9 55.1	-0.2110	0.5890	0.1552	+25	-42		
29 Arietis	6.3	+1.47	+ 2.8	+14 35.8	18 52.5	- 2 10.6	+1.2041	0.5934	+0.1421	+90	+48		
36 Arietis	6.5	1.42	1.7	17 20.7	23 25.0	+ 2 11.3	-0.9009	0.5959	0.1340	-16	-73		
40 Arietis	6.1	1.41	1.9	17 52.3	13 1 5.4	+ 3 47.8	-1.2019	0.5968	0.1309	-43	-72		
ρ ¹ Arietis	7.0	1.39	1.3	17 19.9	3 37.9	+ 6 14.4	-0.3390	0.5981	0.1262	+17	-46		
ρ ² Arietis	5.8	1.39	1.1	17 55.9	3 58.7	+ 6 34.5	-0.8898	0.5982	0.1256	-15	-72		
ρ ³ Arietis	5.5	+1.40	+ 1.1	+17 37.7	4 13.0	+ 6 48.2	-0.5600	0.5983	+0.1251	+ 5	-61		
50 Arietis	6.8	1.38	1.0	17 36.7	5 50.7	+ 8 22.0	-0.3422	0.5992	0.1220	+17	-46		
53 Arietis	6.3	1.35	0.7	17 29.9	8 34.1	+10 58.9	+0.0960	0.6005	0.1166	+45	-20		
54 Arietis	6.3	1.36	+ 0.5	18 24.9	8 55.0	+11 19.1	-0.7742	0.6006	0.1159	- 8	-72		
13 Tauri	5.4	1.29	- 1.0	19 23.0	22 8.2	+ 0 0.5	-0.3839	0.6060	0.0881	+15	-46		
14 Tauri	6.4	+1.29	- 1.1	+19 21.1	22 42.0	+ 0 32.9	-0.3035	0.6061	+0.0867	+19	-40		
NEW MOON.													
1 Cancri	5.9	+1.23	-10.1	+16 3.1	18 2 34.8	+ 0 28.8	+0.1557	0.5756	-0.1326	+46	-19		
5 Cancri	6.3	1.24	10.0	16 43.5	4 30.8	+ 2 20.6	-0.7969	0.5741	0.1356	-10	-73		
29 Cancri	5.9	+1.30	-11.0	+14 32.1	16 26.3	10 9.1	-0.2552	0.5654	-0.1521	+22	44		
A ¹ Cancri	5.6	1.33	11.6	13 2.0	23 0.6	+ 3 48.4	+0.2817	0.5601	0.1599	+53	16		
A ² Cancri	5.8	1.34	11.8	12 28.2	19 0 42.8	- 2 9.7	+0.5940	0.5589	0.1618	+78	+ 1		
60 Cancri	5.7	1.32	12.0	12 0.1	4 49.8	+ 1 49.0	+0.4100	0.5559	0.1661	+62	10		
α Cancri	4.3	1.38	12.0	12 14.3	6 0.3	+ 2 57.1	-0.0334	0.5550	0.1673	+35	-34		
κ Cancri	5.0	+1.40	-12.4	+11 3.8	10 19.0	+ 7 7.4	+0.4670	0.5519	-0.1714	+66	- 7		
ω Leonis	5.6	1.48	13.0	9 29.1	20 6.1	- 7 24.9	+0.4128	0.5453	0.1794	+62	-11		
3 Leonis	6.0	1.47	13.3	8 37.0	20 7.7	- 7 23.3	+1.3234	0.5453	0.1794	+90	+61		
h Leonis	5.4	+1.49	12.9	10 8.9	21 46.3	- 5 47.9	-0.5894	0.5442	0.1806	+ 4	-72		
14 Sextantis	6.6	1.63	14.3	6 5.4	20 14 48.6	+10 42.2	+0.5534	0.5341	0.1901	+73	- 5		
16 Sextantis	6.9	+1.64	-14.1	- 6 39.1	16 1.5	+11 52.8	-0.2775	0.5335	-0.1906	+21	-51		

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JUNE.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S</i>
		$\Delta\alpha$	$\Delta\delta$								
		<i>s</i>	<i>"</i>	<i>°</i>	<i>d h m</i>	<i>h m</i>				<i>°</i>	<i>°</i>
19 Sextantis	6.0	+1.66	-14.6	+ 5 6.0	20 17 48.9	-10 23.1	+1.0394	0.5326	-0.1913	+90	+25
34 Sextantis	6.6	1.80	14.8	4 5.8	21 8 54.3	+ 4 15.1	-0.8027	0.5257	0.1952	- 8	-86
36 Sextantis	6.6	1.81	15.2	3 0.3	10 12.5	+ 5 30.9	+0.1191	0.5251	0.1954	+43	-29
55 Leonis	6.0	1.88	15.7	1 15.6	15 38.2	+10 47.0	+0.9414	0.5233	0.1959	+90	+17
57 Leonis	6.9	1.88	15.8	0 57.4	15 53.3	+11 1.6	+1.2205	0.5233	0.1959	+90	+40
ρ^2 Leonis	6.2	+1.92	-15.8	+ 0 31.7	19 44.3	- 9 14.2	+0.9320	0.5221	-0.1960	+90	+16
ρ^5 Leonis	5.5	1.97	15.7	+ 0 27.9	22 1 1.1	- 4 6.7	-0.0334	0.5205	0.1959	+35	-38
χ Virginis	4.7	2.53	16.3	- 7 27.3	23 22 6.8	- 8 19.0	+0.0509	0.5168	0.1810	+38	-34
28 Virginis	7.0	2.54	16.0	6 57.6	23 32.6	- 6 55.6	+0.7536	0.5165	0.1802	- 7	-90
ψ Virginis	5.0	2.64	16.1	9 0.4	24 6 4.2	- 0 35.4	+0.3407	0.5178	0.1760	+54	-18
σ Virginis	5.2	+2.74	-15.9	-10 12.9	13 10.4	+ 6 18.4	+0.4447	0.5191	-0.1710	+61	-12
50 Virginis	6.3	2.74	15.7	9 48.3	14 8.9	+ 7 15.2	-0.1740	0.5192	0.1703	+24	-47
56 Virginis	7.0	2.77	15.4	9 51.0	16 45.7	+ 9 47.5	-0.5689	0.5198	0.1682	+ 2	-75
58 Virginis	7.0	2.79	15.3	10 1.7	18 10.6	+11 9.9	-0.6076	0.5200	0.1671	0	-79
62 Virginis	7.0	2.83	*15.3	10 47.3	19 40.4	-11 22.9	-0.0169	0.5203	0.1659	+32	-37
α Virginis	1.2	+2.85	-15.1	-10 38.9	22 12.0	- 8 55.8	-0.5878	0.5210	-0.1637	+ 1	-77
i Virginis	5.5	2.86	15.6	12 11.8	22 59.3	- 8 9.8	+0.9965	0.5211	0.1631	+78	+22
86 Virginis	6.0	3.00	14.3	11 56.1	28 8 55.3	+ 1 28.6	-0.8698	0.5239	0.1540	-18	-90
α^1 Libræ	5.3	3.44	10.9	15 35.3	26 17 31.6	+ 9 5.8	-1.2639	0.5357	0.1164	-58	-90
α^2 Libræ	3.0	3.44	10.9	15 38.0	17 37.3	+ 9 11.3	-1.2255	0.5357	0.1163	-53	-90
B. A. C. 4896	6.6	+3.49	-12.4	-17 22.9	17 56.4	+ 9 29.8	+0.6700	0.5358	-0.1158	+70	+ 1
10 Libræ	6.5	3.49	11.4	17 57.1	18 4.0	+ 9 37.2	+1.2848	0.5358	0.1157	+74	+59
26 Libræ	6.5	3.61	9.4	17 24.1	27 5 10.6	- 3 37.2	-0.5225	0.5404	0.1001	- 3	-72
28 Libræ	6.0	3.65	9.0	17 48.1	8 14.0	- 0 39.5	-0.3795	0.5417	0.0956	+ 4	-61
B. A. C. 5109	5.4	3.75	8.3	19 20.1	13 50.7	+ 4 40.5	+0.7082	0.5440	0.0871	+71	+10
41 Libræ	5.7	+3.77	- 7.7	-18 58.7	16 51.4	+ 7 41.4	+0.1490	0.5454	-0.0824	+31	-28
κ Libræ	5.0	3.79	7.5	19 21.6	18 18.2	+ 9 5.4	+0.4520	0.5458	0.0801	+50	-11
λ Libræ	5.0	3.85	6.5	19 52.4	23 41.7	- 9 41.6	+0.6075	0.5479	0.0714	+61	- 1
47 Libræ	4.4	3.84	6.2	19 5.5	28 0 29.9	- 8 54.9	-0.3077	0.5482	0.0700	+ 6	-56
β^1 Scorpïi	2.7	3.89	5.3	19 32.2	5 24.1	- 4 10.3	-0.1432	0.5503	0.0618	+14	-45
ω^1 Scorpïi	4.1	+3.92	- 5.3	-20 24.2	6 1.7	- 3 33.9	+0.7700	0.5503	-0.0607	+70	+ 8
ω^2 Scorpïi	4.6	3.93	5.3	20 36.2	6 18.1	- 3 18.1	+0.9733	0.5504	0.0603	+69	+23
ν Scorpïi	4.2	3.91	4.6	19 12.3	8 28.7	- 1 11.7	-0.6886	0.5512	0.0565	-18	-90
ψ Ophiuchi	4.6	3.97	3.5	19 48.4	14 6.6	+ 4 15.0	-0.3187	0.5532	0.0468	+ 2	-57
ω Ophiuchi	4.7	4.04	3.0	21 15.3	17 48.1	+ 7 49.1	+1.1066	0.5545	0.0402	+69	+35
B. A. C. 5580	5.7	+4.03	- 1.7	-19 44.1	22 19.9	-11 48.1	-0.7202	0.5559	-0.0321	-23	-90
B. A. C. 5758	6.6	4.13	0.0	21 25.7	29 9 25.7	- 1 4.8	+0.8834	0.5590	-0.0115	+69	+16
ξ Ophiuchi	4.5	4.15	+ 1.9	21 0.4	16 8.9	+ 5 24.8	+0.3882	0.5606	+0.0011	+38	-14
58 Ophiuchi	5.0	4.22	4.3	21 38.1	30 2 17.3	- 8 47.5	+1.1765	0.5624	0.0205	+68	+43
B. A. C. 6098	6.0	4.20	6.3	20 44.1	10 56.1	- 0 26.5	+0.4505	0.5634	0.0370	+46	-11
μ Sagittarii	4.0	+4.21	+ 7.3	-21 5.0	15 55.8	+ 4 22.9	+1.0327	0.5638	+0.0465	+69	+28
15 Sagittarii	5.6	4.20	7.5	20 45.4	16 35.2	+ 5 0.9	+0.7109	0.5639	0.0477	+68	+ 4
16 Sagittarii	6.2	4.19	7.5	20 24.9	16 35.7	+ 5 1.4	+0.3450	0.5639	0.0478	+40	-17
17 Sagittarii	7.0	4.20	7.6	20 34.5	17 12.4	+ 5 36.8	+0.5462	0.5639	0.0490	+57	- 3
21 Sagittarii	4.9	4.20	8.4	20 35.5	21 8.2	+ 9 24.5	+0.7706	0.5641	0.0563	+69	+ 9
B. A. C. 6287	5.7	+4.15	+ 9.0	-18 47.4	23 20.6	+11 32.3	-1.0386	0.5641	+0.0605	-41	-90

JULY.

B. A. C. 6386	7.3	+4.18	+10.7	-20 22.8	1 7 14.5	- 4 50.1	+1.2031	0.5641	+0.0751	+70	+45
Lalande 35497	6.4	4.13	12.0	19 23.1	14 4.7	+ 1 46.0	+0.6938	0.5638	0.0875	+69	+ 3
B. A. C. 6536	5.5	4.13	12.5	19 26.5	16 25.3	+ 4 1.7	+0.9632	0.5636	0.0917	+71	+21
d Sagittarii	4.9	4.11	13.3	19 7.5	20 38.2	+ 8 6.0	+1.0261	0.5632	0.0991	+71	+26
ρ^1 Sagittarii	3.9	4.07	13.6	18 1.8	22 28.6	+ 9 52.6	+0.0436	0.5630	0.1023	+27	-34
ρ^2 Sagittarii	6.1	+4.09	+13.6	-18 29.3	22 32.4	+ 9 56.2	+0.5379	0.5630	+0.1024	+58	- 6

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JULY.

THE STAR'S				AT CONJUNCTION IN R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S</i>
		$\Delta\alpha$	$\Delta\delta$								
		<i>s</i>	<i>"</i>	<i>°</i>	<i>d h m</i>	<i>h. m</i>				<i>°</i>	<i>°</i>
B. A. C. 6658	7.3	+4.07	+14.2	-18 33.3	2 1 21.3	-11 20.6	+0.9035	0.5628	+0.1072	+71	+16
B. A. C. 6710	6.0	4.05	14.9	18 26.9	5 24.4	-7 25.8	+1.2354	0.5622	0.1139	+72	+48
ϵ^1 Sagittarii	5.6	4.00	15.0	16 31.0	7 5.5	-5 48.2	-0.6221	0.5620	0.1167	-8	-82
ϵ^2 Sagittarii	5.0	4.00	15.1	16 21.1	7 54.4	-5 1.0	-0.7008	0.5619	0.1180	-12	-90
ϵ^3 Sagittarii	5.0	3.94	16.2	15 45.0	14 54.6	+1 45.0	-0.4721	0.5608	0.1291	+2	-68
B. A. C. 6992	6.2	+3.86	+17.7	-15 5.5	3 1 18.5	+11 47.6	+0.2572	0.5591	+0.1445	+44	-22
γ Capricorni	3.4	3.86	17.7	15 5.4	1 24.9	+11 53.8	+0.2696	0.5591	0.1446	+45	-21
B. A. C. 7087	6.2	3.80	18.4	14 3.4	7 27.3	-6 16.1	+0.0798	0.5580	0.1529	+35	-32
8 Aquarii	6.8	3.70	19.6	13 25.9	19 17.8	+5 10.5	+1.3208	0.5559	0.1676	+77	+61
ν Aquarii	4.6	3.64	19.8	11 46.0	23 46.9	+9 30.7	+0.3399	0.5552	0.1727	+52	-18
B. A. C. 7408	6.9	+3.56	+19.9	-9 44.6	4 5 32.7	-8 55.1	-0.7634	0.5543	+0.1786	-9	-90
17 Aquarii	6.4	3.55	19.9	9 44.2	5 59.5	-8 29.1	-0.6889	0.5542	0.1791	-4	-88
19 Aquarii	5.7	3.55	20.0	10 9.9	7 2.6	-7 28.1	-0.0538	0.5540	0.1801	+30	-39
ξ Aquarii	4.8	3.48	20.2	8 17.6	12 52.9	-1 49.5	-0.9371	0.5532	0.1855	-19	-90
B. A. C. 7562	5.5	3.47	20.8	9 29.2	16 12.7	+1 23.8	+0.9279	0.5528	0.1883	+81	+17
ϵ^1 Capricorni	5.2	+3.47	+20.8	-9 33.9	16 15.0	+1 26.0	+0.9820	0.5528	+0.1883	+80	+20
ϵ^2 Capricorni	6.2	3.47	20.8	9 43.6	16 50.2	+2 0.0	+1.2964	0.5527	0.1888	+80	+52
30 Aquarii	5.6	3.37	20.6	6 59.7	5 0 47.5	+9 41.5	-0.0167	0.5519	0.1947	+34	-37
B. A. C. 7690	7.0	3.34	20.3	5 49.9	2 6.4	+10 57.8	-0.9671	0.5518	0.1956	-20	-90
B. A. C. 7704	7.3	3.34	20.5	6 18.4	2 51.7	+11 41.7	-0.3258	0.5518	0.1961	+18	-56
B. A. C. 7744	6.3	+3.30	+20.3	-5 12.2	5 13.6	-10 1.1	-1.0034	0.5517	+0.1975	-22	-90
B. A. C. 7752	6.7	3.30	20.2	4 56.2	5 45.4	-9 30.4	-1.1747	0.5516	0.1979	-36	-90
44 Aquarii	5.9	3.29	20.5	5 52.5	7 15.8	-8 2.9	+0.0968	0.5515	0.1987	+41	-31
51 Aquarii	5.8	3.26	20.4	5 20.0	10 32.5	-4 52.8	+0.1892	0.5514	0.2005	+46	-25
κ Aquarii	5.5	3.19	20.3	4 44.0	16 55.4	+1 17.6	+0.8581	0.5513	0.2034	+85	+11
Lalande 44337	6.3	+3.18	+20.2	-4 3.7	18 20.5	+2 39.8	+0.4546	0.5513	+0.2039	+64	-12
κ Piscium	5.0	2.96	18.4	+0 43.1	6 15 50.3	-0 33.1	-0.0222	0.5519	0.2078	+35	-38
9 Piscium	6.6	2.96	18.5	0 35.0	15 59.2	-0 24.5	+0.1470	0.5519	0.2078	+45	-18
15 Piscium	6.6	2.92	18.3	0 46.3	19 47.7	+3 16.5	+0.7452	0.5537	0.2076	+90	+5
16 Piscium	5.6	2.91	18.1	1 33.5	20 13.4	+3 41.3	+0.0284	0.5538	0.2075	+38	-35
λ Piscium	4.7	+2.89	+18.0	+1 14.4	22 50.1	+6 12.8	+0.8951	0.5543	+0.2072	+90	+14
19 Piscium	5.2	2.87	17.4	2 56.5	7 0 50.0	+8 8.7	-0.4322	0.5546	0.2068	+13	-63
22 Piscium	5.9	2.85	17.5	2 23.1	3 23.4	+10 47.0	+0.6655	0.5553	0.2063	+84	0
45 Piscium	6.9	2.72	14.9	7 8.9	18 45.2	+1 27.6	-1.0604	0.5596	0.2004	-26	-83
51 Piscium	5.7	2.68	15.0	6 24.8	21 46.5	+4 22.7	+0.2909	0.5606	0.1988	+54	-19
δ Piscium	4.6	+2.61	+14.1	+7 3.0	8 5 3.7	+11 24.8	+1.0734	0.5633	+0.1939	+90	+29
100 Piscium	6.8	2.44	10.5	12 3.3	9 1 17.9	+6 56.3	-0.2533	0.5721	0.1749	+22	-47
π Piscium	5.6	2.43	10.4	11 38.3	2 16.3	+7 52.7	+0.3372	0.5726	0.1738	+57	-14
B. A. C. 490	7.5	2.43	10.4	11 34.6	2 30.8	+8 6.6	+0.4426	0.5727	0.1735	+64	-8
19 Arietis	6.2	2.31	7.5	14 49.1	17 32.3	-1 24.7	-0.3683	0.5800	0.1536	+16	-51
29 Arietis	6.3	+2.25	+6.6	+14 35.9	10 1 49.5	+6 34.0	+1.0741	0.5843	+0.1408	+90	+36
36 Arietis	6.5	2.21	5.0	17 20.8	6 30.3	+11 4.3	-1.0544	0.5864	0.1329	-28	-73
ρ^1 Arietis	7.0	2.16	4.5	17 20.0	10 51.0	-8 44.9	-0.4804	0.5885	0.1253	+10	-73
ρ^2 Arietis	5.8	2.17	4.2	17 55.9	11 12.4	-8 24.3	-1.0378	0.5886	0.1246	-26	-72
ρ^3 Arietis	5.5	2.17	4.3	17 37.8	11 27.3	-8 9.9	-0.7031	0.5888	0.1240	-3	-72
50 Arietis	6.8	+2.14	+4.1	+17 36.8	13 7.9	-6 33.2	-0.4802	0.5895	+0.1211	+10	-55
53 Arietis	6.3	2.11	3.8	17 30.0	15 56.3	-3 51.3	-0.0328	0.5908	0.1159	+34	-27
54 Arietis	6.3	2.12	3.4	18 25.0	16 17.9	-3 30.4	-0.9142	0.5909	0.1152	-17	-72
13 Tauri	5.4	2.00	1.3	19 23.0	11 5 55.5	+9 35.5	-0.5000	0.5964	0.0879	+8	-54
14 Tauri	6.4	2.00	1.2	19 21.2	6 30.4	+10 9.0	-0.4182	0.5966	0.0868	+13	-48
B. A. C. 1242	6.6	+1.93	+0.1	+19 55.3	13 22.4	-7 15.1	-0.4465	0.5988	+0.0719	+11	-48
ω^1 Tauri	5.8	1.90	-0.1	19 20.9	16 33.4	-4 11.7	+0.3501	0.5996	0.0650	+59	-2
ω^2 Tauri	4.6	1.88	0.8	20 20.1	19 44.2	-1 8.5	-0.4488	0.6004	0.0578	+11	-47
53 Tauri	5.5	1.88	1.1	20 54.2	20 34.8	-0 19.8	-0.9721	0.6006	0.0559	-22	-69
W. B. 4 ^h 650	5.8	1.81	1.9	20 29.1	12 3 58.5	+6 46.4	-0.2020	0.6019	0.0389	+25	-30
ι Tauri	4.7	+1.74	-3.4	+21 26.8	13 40.7	-7 54.7	-0.9043	0.6026	+0.0162	-18	-69

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JULY.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'n's from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m					
105 Tauri	5.8	+1.72	-3.6	+21 34.4	12 15 34.0	-6 5.8	-1.0043	0.6026	+0.0118	-25	-68
107 Tauri	6.5	1.70	3.3	19 43.8	15 57.4	-5 43.4	+0.8580	0.6026	+0.0109	+90	+33
ζ Tauri	3.0	1.63	4.9	21 4.8	13 3 13.5	+5 5.8	-0.5318	0.6018	-0.0156	+6	-50
B. A. C. 1867	7.2	1.57	5.5	20 16.4	9 24.7	+11 2.3	+0.1400	0.6005	0.0300	+45	-10
NEW MOON.											
ω Leonis	5.6	+1.40	-12.0	+9 29.1	17 5 17.7	+3 34.7	+0.5531	0.5502	-0.1794	+74	-3
h Leonis	5.4	1.40	11.9	10 9.0	6 56.7	+5 10.4	-0.4430	0.5492	0.1808	+12	-61
14 Sextantis	6.6	1.49	12.8	6 5.4	23 44.4	-2 34.0	+0.7223	0.5396	0.1907	+90	+5
16 Sextantis	6.9	1.50	12.7	6 39.2	18 0 56.3	-1 24.4	-0.1029	0.5390	0.1912	+30	-41
19 Sextantis	6.0	+1.50	-13.1	+5 6.0	2 41.9	+0 17.8	+1.2102	0.5381	-0.1919	+90	+40
34 Sextantis	6.6	1.60	13.2	4 5.8	17 32.8	-9 18.6	-0.6019	0.5313	0.1961	+4	-76
36 Sextantis	6.6	1.61	13.5	3 0.3	18 49.7	-8 4.1	+0.3167	0.5308	0.1963	+55	-19
55 Leonis	6.0	1.66	13.9	1 15.6	19 0 10.2	-2 53.2	+1.1404	0.5288	0.1969	+90	+32
ρ ² Leonis	6.2	1.69	14.0	0 31.7	4 12.4	+1 1.8	+1.1355	0.5273	0.1970	+90	+31
ρ ⁵ Leonis	5.5	+1.74	-13.9	+0 27.9	9 24.1	+6 4.1	+0.1816	0.5257	-0.1969	+47	-26
χ Virginis	4.7	2.23	14.3	-7 27.3	21 5 54.9	+1 16.9	+0.2935	0.5196	0.1818	+52	-20
28 Virginis	7.0	2.24	14.0	6 57.6	7 20.0	+2 39.5	-0.5076	0.5196	0.1809	+7	-69
ψ Virginis	5.0	2.33	14.2	9 0.3	13 48.4	+8 56.6	+0.5831	0.5199	0.1767	+73	-4
g Virginis	5.2	2.43	14.1	10 12.9	20 51.7	-8 12.5	+0.6869	0.5206	0.1715	+79	+1
B. A. C. 4394	5.9	+2.41	-13.4	-8 27.3	21 12.7	-7 52.1	-1.3094	0.5207	-0.1713	-57	+90
50 Virginis	6.3	2.44	13.8	9 48.3	21 50.0	-7 15.9	+0.0689	0.5207	0.1708	+37	-32
56 Virginis	7.0	2.47	13.7	9 50.9	22 0 26.0	-4 44.5	-0.3239	0.5211	0.1687	+16	-56
58 Virginis	7.0	2.48	13.5	10 1.7	1 50.5	-3 22.5	-0.3630	0.5213	0.1676	+14	-58
62 Virginis	7.0	2.52	13.6	10 47.3	3 19.9	-1 55.7	+0.2263	0.5215	0.1663	+45	-25
a Virginis	1.2	+2.54	-13.4	-10 38.9	5 50.8	+0 30.8	-0.3436	0.5219	-0.1642	+14	-57
i Virginis	5.5	2.57	13.9	12 11.8	6 37.9	+1 16.5	+1.2362	0.5220	0.1635	+78	+44
86 Virginis	6.0	2.69	12.7	11 56.0	16 32.3	+10 53.3	-0.6287	0.5240	0.1543	-3	-82
α ¹ Libræ	5.3	3.17	9.7	15 35.3	24 1 11.4	-5 26.7	-1.0456	0.5339	0.1168	-35	-90
α ² Libræ	3.0	3.18	9.9	15 38.0	1 17.1	-5 21.2	-1.0065	0.5339	0.1167	-32	-90
B. A. C. 4896	6.6	+3.22	-10.3	-17 22.9	1 36.2	-5 2.5	+0.8875	0.5340	-0.1162	+73	+15
26 Libræ	6.5	3.36	8.5	17 24.1	12 53.5	+5 53.5	-0.3159	0.5382	0.1006	+8	-56
28 Libræ	6.0	3.41	8.1	17 48.1	15 57.9	+8 52.1	-0.1764	0.5393	0.0962	+16	-47
B. A. C. 5109	5.4	3.52	7.6	19 20.1	21 36.5	-9 40.0	+0.9949	0.5414	0.0877	+71	+24
41 Libræ	5.7	3.55	7.0	18 58.7	25 0 38.1	-6 44.2	+0.3422	0.5427	0.0831	+43	-17
κ Libræ	5.0	+3.58	-6.9	-19 21.6	2 5.6	-5 19.5	+0.6434	0.5432	-0.0808	+64	0
λ Libræ	5.0	3.66	6.0	19 52.4	7 31.0	-0 4.6	+0.7921	0.5453	0.0722	+70	+10
47 Libræ	6.4	3.65	5.6	19 5.5	8 19.4	+0 42.3	-0.1242	0.5456	0.0709	+15	-44
β ¹ Scorpii	2.7	3.72	4.8	19 32.2	13 15.3	+5 28.6	+0.0340	0.5474	0.0628	+23	-34
ω ¹ Scorpii	4.1	3.75	4.9	20 24.2	13 53.2	+6 5.3	+0.9463	0.5476	0.0617	+70	+21
ω ² Scorpii	4.6	+3.76	-4.9	-20 36.2	14 9.8	+6 21.3	+1.1491	0.5477	-0.0613	+69	+39
ν Scorpii	4.2	3.74	4.0	19 12.3	16 21.0	+8 28.3	-0.5158	0.5486	0.0576	-8	-72
ψ Ophiuchi	4.6	3.82	3.1	19 48.4	22 0.9	-10 3.0	-0.1540	0.5506	0.0479	+12	-46
ω Ophiuchi	4.7	3.91	2.7	21 15.3	26 1 43.7	-6 27.5	+1.2650	0.5520	0.0414	+69	+60
B. A. C. 5580	5.7	3.91	-1.3	19 44.1	6 16.8	-2 3.5	-0.5076	0.5535	0.0334	-13	-77
B. A. C. 5758	6.6	+4.05	+0.2	-21 25.7	17 25.4	+8 42.8	+1.0177	0.5570	-0.0131	+69	+27
ξ Ophiuchi	4.5	4.13	2.2	21 0.4	27 0 10.1	-8 46.3	+0.5112	0.5589	-0.0005	+47	-7
B. A. C. 6098	6.0	4.25	6.5	20 44.1	18 58.3	+9 23.4	+0.5394	0.5630	+0.0351	+52	-6
μ Sagittarii	4.0	4.29	7.6	21 5.0	23 57.6	-9 47.6	+1.1105	0.5638	0.0446	+69	+35
15 Sagittarii	5.6	4.28	7.9	20 45.3	28 0 37.0	-9 9.5	+0.7884	0.5640	0.0458	+69	+10
16 Sagittarii	6.2	+4.27	+7.8	-20 24.9	0 37.4	-9 9.1	+0.4232	0.5640	+0.0459	+45	-13
17 Sagittarii	7.0	4.28	8.0	20 34.5	1 14.0	-8 33.8	+0.6227	0.5640	0.0470	+60	-1
21 Sagittarii	4.9	4.30	8.7	20 35.5	5 9.2	-4 46.8	+0.8383	0.5644	0.0545	+69	+13
B. A. C. 6287	5.7	4.26	9.6	18 47.3	7 21.0	-2 39.5	-0.9696	0.5647	0.0586	-36	-90
B. A. C. 6294	5.2	4.25	9.8	18 28.1	7 54.9	-2 6.7	-1.2794	0.5648	0.0597	-71	-90
B. A. C. 6386	7.3	+4.34	+11.1	-20 22.7	15 12.7	+4 55.9	+1.2490	0.5653	+0.0733	+70	+53

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JULY.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m					
Lalande 35497	6.4	+4.32	+12.7	-19 23.1	28 22 0.3	+11 29.4	+0.7274	0.5656	+0.0858	+70	+6
B. A. C. 6536	5.5	4.33	13.1	19 26.5	29 0 19.7	+10 16.1	+0.9906	0.5657	0.0900	+71	+24
<i>d</i> Sagittarii	4.9	4.33	14.0	19 7.5	4 30.4	+6 14.1	+1.0441	0.5657	0.0974	+71	+28
ρ^1 Sagittarii	3.9	4.30	14.5	18 1.8	6 19.8	-4 28.5	+0.0626	0.5657	0.1006	+28	-33
ρ^2 Sagittarii	6.1	4.32	14.5	18 29.3	6 23.6	-4 24.8	+0.5543	0.5657	0.1007	+59	-5
B. A. C. 6658	7.3	+4.32	+15.1	-18 33.3	9 10.8	-1 43.4	+0.9120	0.5656	+0.1056	+71	+17
B. A. C. 6710	6.0	4.32	15.8	18 26.8	13 11.2	+2 8.7	+1.2331	0.5655	0.1125	+72	+48
ϵ^1 Sagittarii	5.6	4.27	16.3	16 31.0	14 51.2	+3 45.1	-0.6173	0.5654	0.1152	-8	-81
ϵ^2 Sagittarii	5.0	4.27	16.5	16 21.1	15 39.6	+4 31.9	-0.6970	0.5654	0.1166	-12	-90
δ Sagittarii	5.0	4.25	17.7	15 45.0	22 34.3	+11 12.3	-0.4845	0.5650	0.1279	+1	-69
B. A. C. 6992	6.2	+4.22	+19.5	-15 5.5	30 8 48.9	-2 54.3	+0.2176	0.5641	+0.1436	+41	-24
β Capricorni	3.4	4.22	19.5	15 5.3	8 55.2	-2 48.1	+0.2295	0.5641	0.1437	+42	-24
B. A. C. 7087	6.2	4.19	20.4	14 3.3	14 51.6	+2 55.9	+0.0281	0.5634	0.1522	+31	-36
8 Aquarii	6.8	4.14	21.9	13 25.8	31 2 29.1	-9 50.5	+1.2332	0.5621	0.1673	+77	+45
ν Aquarii	4.6	4.10	22.4	11 46.0	6 52.9	-5 35.7	+0.2509	0.5615	0.1725	+47	-22
B. A. C. 7408	6.9	+4.05	+22.9	-9 44.5	12 31.6	-0 8.5	-0.8547	0.5609	+0.1787	-15	-90
17 Aquarii	6.4	4.04	22.9	9 44.1	12 57.9	+0 16.9	-0.7835	0.5609	0.1791	-11	-90
19 Aquarii	5.7	4.04	23.0	10 9.8	13 59.6	+1 16.5	-0.1551	0.5608	0.1802	-25	-46
ξ Aquarii	4.8	4.00	23.4	8 17.5	19 42.6	+6 47.8	-1.0413	0.5601	0.1857	+27	-90
B. A. C. 7562	5.5	3.99	23.8	9 29.1	22 57.9	+9 56.6	+0.7987	0.5598	0.1887	+81	+8
ϵ^1 Capricorni	5.2	+3.99	+23.8	-9 33.8	23 0.3	+9 58.9	+0.8530	0.5598	+0.1887	+80	+11
ϵ^2 Capricorni	6.2	+3.99	+23.9	-9 43.6	23 34.8	+10 32.2	+1.1634	0.5598	+0.1892	+80	+35

AUGUST.

30 Aquarii	5.6	+3.92	+24.2	-6 59.7	1 7 21.6	-5 56.9	-0.1544	0.5592	+0.1953	+26	-45
B. A. C. 7690	7.0	3.91	24.1	5 49.8	8 38.9	-4 42.2	-1.0986	0.5590	0.1962	-30	-90
B. A. C. 7704	7.3	3.91	24.2	6 18.4	9 23.1	-3 59.5	-0.4648	0.5590	0.1967	+10	-66
B. A. C. 7744	6.3	3.89	24.2	5 12.1	11 42.0	-1 45.3	-1.1407	0.5589	0.1982	-34	-90
B. A. C. 7752	6.7	3.90	24.1	4 56.1	12 13.0	-1 15.3	-1.3118	0.5588	0.1985	-55	-90
44 Aquarii	5.9	+3.88	+24.4	-5 52.5	13 41.5	+0 10.2	-0.0540	0.5587	+0.1985	+32	-39
51 Aquarii	5.8	3.86	24.4	5 19.9	16 53.8	+3 16.0	+0.0310	0.5586	0.2012	+37	-35
κ Aquarii	5.5	3.80	24.5	4 43.9	23 8.6	+9 18.2	+0.6832	0.5585	0.2042	+84	+1
Lalande 44337	6.3	3.80	24.5	-4 3.7	2 03.9	+10 38.7	+0.2807	0.5584	0.2048	+52	-21
κ Piscium	5.0	3.66	23.3	+0 43.2	21 36.1	+7 0.1	-0.2258	0.5593	0.2086	+24	-49
9 Piscium	6.6	+3.65	+23.4	+0 35.1	21 44.7	+7 8.5	-0.0585	0.5593	+0.2086	+33	-40
15 Piscium	6.6	3.61	23.2	0 46.3	3 1 29.3	+10 45.4	+0.5310	0.5594	0.2084	+71	-7
16 Piscium	5.6	3.62	23.0	1 33.5	1 54.5	+11 9.8	-0.1815	0.5597	0.2084	+26	-47
λ Piscium	4.7	3.60	22.9	1 14.5	4 28.6	-10 21.4	+0.6762	0.5600	0.2080	+85	+1
19 Piscium	5.2	3.60	22.4	2 56.6	6 26.6	-8 27.3	-0.6450	0.5603	0.2076	+1	-81
22 Piscium	5.9	+3.57	+22.5	+2 23.2	8 57.6	-6 1.5	+0.4432	0.5607	+0.2071	+64	-12
45 Piscium	6.9	3.48	20.2	7 9.0	4 0 7.3	+8 37.3	-1.2893	0.5635	0.2009	-50	-83
51 Piscium	5.7	3.45	20.2	6 24.9	3 6.6	+11 30.1	+0.0536	0.5642	0.1992	+38	-33
62 Piscium	6.0	3.39	19.4	6 45.9	10 9.9	-5 41.3	+1.0869	0.5661	0.1944	+90	+30
δ Piscium	4.6	3.39	19.3	7 3.1	10 20.3	-5 31.2	+0.8300	0.5661	0.1942	+90	+12
100 Piscium	6.8	+3.27	+15.4	+12 3.4	5 6 30.5	-10 3.8	-0.5000	0.5724	+0.1747	-22	-63
π Piscium	5.6	3.25	15.4	11 38.4	7 28.9	-9 7.5	+0.0907	0.5727	0.1736	+41	-27
B. A. C. 490	7.5	3.26	15.3	11 34.6	7 43.4	-8 53.5	+0.1949	0.5728	0.1733	+48	-21
19 Arietis	6.2	3.16	12.1	14 49.2	22 48.5	+5 38.7	-0.6145	0.5782	0.1533	+2	-69
29 Arietis	6.3	3.06	10.9	14 36.0	6 7 10.2	-10 17.9	+0.8366	0.5812	0.1404	+90	+19
σ Arietis	5.8	+3.01	+10.0	+14 53.7	12 1.5	-5 37.4	+1.1994	0.5830	+0.1323	+90	+49
ρ^1 Arietis	7.0	3.02	8.4	17 20.1	16 18.0	-1 30.5	-0.7190	0.5844	0.1249	-4	-73
ρ^3 Arietis	5.5	3.02	8.2	17 37.9	16 54.7	-0 55.1	-0.9432	0.5847	0.1239	-19	-72
50 Arietis	6.8	3.01	7.9	17 36.9	18 36.8	+0 43.1	-0.7181	0.5852	0.1208	-4	-73
53 Arietis	6.3	2.96	7.5	17 30.0	21 27.8	+3 27.6	-0.2658	0.5861	0.1156	+22	-40
54 Arietis	6.3	+2.98	+7.1	+18 25.0	21 49.7	+3 48.8	-1.1524	0.5863	+0.1149	-38	-72

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

AUGUST.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle. <i>H</i>	<i>J</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m				°	°
13 Tauri	5.4	+2.84	+ 4.4	+19 23.1	7 11 41.6	- 6 51.0	-0.7239	0.5904	+0.0279	- 5	71
14 Tauri	6.4	2.84	4.3	19 21.2	12 17.1	- 6 16.9	-0.6410	0.5905	0.0868	0	65
B. A. C. 1242	6.6	2.76	2.8	19 55.4	19 17.7	+ 0 27.7	-0.6618	0.5920	0.0722	- 2	-65
ω^1 Tauri	5.8	2.72	2.5	19 20.9	22 32.8	+ 3 35.2	+0.1451	0.5927	0.0653	+45	-13
ω^2 Tauri	4.6	2.69	1.9	20 20.1	8 1 47.9	+ 6 42.7	-0.6568	0.5932	0.0583	- 1	-64
53 Tauri	5.5	+2.70	+ 1.7	+20 54.2	2 39.6	+ 7 32.4	1 18.1	0.5934	+0.0564	-43	-69
W. B. 4 ^h 650	5.8	2.59	+ 0.1	20 29.2	10 13.7	- 9 11.0	-0.3966	0.5941	0.0398	+14	-42
ι Tauri	4.7	2.50	- 1.9	21 26.9	20 10.2	+ 0 22.3	-1.0918	0.5947	0.0175	-34	69
ζ Tauri	5.4	2.45	1.8	20 17.3	22 5.1	+ 2 12.8	+0.1198	0.5946	0.0132	+43	-10
105 Tauri	5.8	2.48	2.2	21 34.4	22 6.4	+ 2 14.0	1.1892	0.5946	0.0132	-45	-68
107 Tauri	6.5	+2.44	- 1.7	+19 43.8	22 30.3	+ 2 37.0	+0.6927	0.5946	+0.0123	+90	+23
ζ Tauri	3.0	2.33	3.9	21 4.9	9 10 3.7	-10 16.3	-0.6931	0.5937	-0.0137	- 4	-65
B. A. C. 1867	7.2	2.24	4.7	20 16.4	16 24.3	- 4 10.4	-0.0001	0.5925	0.0278	+36	-17
χ^1 Orionis	4.6	2.24	4.7	20 15.4	16 50.7	- 3 45.0	+0.0054	0.5925	0.0288	+36	16
χ^2 Orionis	5.8	2.23	4.6	19 43.7	17 4.4	- 3 31.9	+0.5379	0.5924	0.0292	+74	+12
χ^3 Orionis	5.1	+2.18	- 5.1	+19 41.5	20 31.4	- 1 12.8	+0.4639	0.5917	-0.0368	+68	+ 7
χ^4 Orionis	4.8	2.19	5.2	20 8.4	20 42.3	- 0 2.3	-0.0027	0.5916	0.0372	+36	-18
68 Orionis	5.6	2.15	5.6	19 48.7	10 0 5.	+ 3 8.2	+0.1998	0.5908	0.0443	+48	- 8
71 Orionis	5.1	2.12	5.7	19 11.3	1 10.5	+ 4 15.6	+0.7849	0.5905	0.0468	+90	+24
16 Geminorum	6.8	2.10	6.6	20 33.2	6 30.4	+ 9 23.1	-0.8959	0.5889	0.0581	-16	69
ν Geminorum	4.0	+2.09	- 6.6	+20 16.4	6 55.7	+ 9 47.6	-0.6323	0.5888	-0.0589	0	-62
22 Geminorum	7.2	2.06	6.6	19 30.1	9 17.0	-11 56.4	+0.0129	0.5888	0.0639	+37	-20
W. B. 7 ^h 685	6.2	1.81	8.9	17 17.8	11 9 16.2	+11 9.5	+0.1917	0.5779	0.1097	+48	-15
f Geminorum	5.2	1.80	9.3	17 53.9	12 32.9	- 9 40.9	-0.8003	0.5762	0.1154	-10	-72
NEW MOON.											
β^2 Leonis	6.2	+1.59	-12.5	+ 0 31.7	15 12 35.7	+11 12.9	+1.3051	0.5305	-0.1963	+90	+52
β^5 Leonis	5.5	1.62	12.4	+ 0 27.9	17 45.3	- 7 46.9	+0.3627	0.5291	0.1963	+58	-16
ν Leonis	4.5	1.68	12.2	- 0 16.8	16 5 37.9	+ 3 44.5	-1.1573	0.5261	0.1949	-34	-90
χ Virginis	4.7	1.95	12.3	7 27.3	17 13 53.9	+11 3.6	+0.5457	0.5230	0.1817	+70	- 6
28 Virginis	7.0	+1.96	-12.1	- 6 57.5	15 18.7	11 34.1	-0.2533	0.5230	-0.1809	+21	-51
ψ Virginis	5.0	2.04	12.2	9 0.3	21 43.8	- 5 20.3	+0.8439	0.5231	0.1766	+81	+11
δ Virginis	5.2	2.12	12.0	10 12.9	4 44.2	+ 1 27.8	+0.9547	0.5234	0.1715	-80	+19
B. A. C. 4394	5.9	2.10	11.5	8 27.4	5 5.1	+ 1 48.0	-1.0383	0.5235	0.1712	-27	+90
50 Virginis	6.3	2.12	11.8	9 48.3	5 42.2	+ 2 24.0	+0.3386	0.5235	0.1707	+53	-18
56 Virginis	7.0	+2.14	-11.7	- 9 50.9	8 17.2	+ 4 54.5	-0.0513	0.5237	-0.1685	+30	-39
58 Virginis	7.0	2.16	11.6	10 1.7	9 41.0	+ 6 15.8	-0.0884	0.5239	0.1675	+28	-41
62 Virginis	7.0	2.19	11.6	10 47.2	11 10.2	+ 7 42.4	+0.4998	0.5240	0.1663	+64	- 9
α Virginis	1.2	2.21	11.4	10 38.9	13 40.3	+10 8.0	-0.0671	0.5243	0.1641	+29	-40
86 Virginis	6.0	2.34	10.8	11 56.0	19 0 19.3	- 3 31.9	-0.3455	0.5258	0.1542	+12	-57
5 Libræ	6.6	+2.74	- 8.3	-15 2.7	20 6 38.3	+ 1 52.2	-1.0821	0.5326	-0.1197	-37	-90
α^1 Libræ	5.3	2.78	8.2	15 35.3	8 59.1	+ 3 8.7	-0.7580	0.5332	0.1166	-15	-90
α^2 Libræ	3.0	2.78	8.2	15 38.0	9 4.8	+ 4 14.5	-0.7195	0.5332	0.1165	-13	-90
B. A. C. 4896	6.6	2.82	8.8	17 22.8	9 24.0	+ 4 32.8	+1.1772	0.5335	0.1161	+73	+40
ν^2 Libræ	6.9	2.90	7.2	16 6.2	16 57.6	+11 52.4	-1.0752	0.5355	0.1058	-38	-90
26 Libræ	6.5	+2.97	- 7.1	-17 24.0	20 44.9	- 8 27.4	-0.0306	0.5366	-0.1005	+23	-38
28 Libræ	6.0	3.01	6.8	17 48.1	23 50.5	- 5 27.6	+0.1088	0.5375	0.0961	+31	-30
ζ^2 Libræ	7.0	3.05	5.9	17 6.1	21 4 5.4	- 1 20.6	-1.0602	0.5388	0.0898	-39	-90
B. A. C. 5109	5.4	3.12	6.4	19 20.1	5 31.6	+ 0 2.9	+1.2797	0.5393	0.0877	+71	+61
41 Libræ	5.7	3.16	5.8	18 58.6	8 34.7	+ 3 0.2	+0.6238	0.5402	0.0831	+64	- 1
κ Libræ	5.0	+3.18	- 5.8	-19 21.6	10 2.8	+ 4 25.6	+0.9252	0.5407	-0.0808	+71	+19
λ Libræ	5.0	3.26	5.0	19 52.4	15 31.3	+ 9 43.5	+1.0710	0.5424	0.0723	+70	+31
47 Libræ	6.4	3.25	4.6	19 5.5	16 20.2	+10 30.9	+0.1516	0.5427	0.0710	+31	-27
β^1 Scorpii	2.7	3.33	3.8	19 32.1	21 19.2	- 8 39.7	+0.3065	0.5442	0.0630	+39	-19
ω^1 Scorpii	4.1	3.36	4.1	19 42.2	21 57.4	- 8 2.7	+1.2213	0.5444	0.0620	+70	+49
ν Scorpii	4.2	+3.36	- 3.2	-20 36.2	22 0 26.9	- 5 38.0	-0.2475	0.5453	-0.0579	+ 8	-51

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

AUGUST.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	y'	x'	y'	N.	S.
		$\Delta\alpha$	$\Delta\delta$								
ψ Ophiuchi	4.6	+3.45	-2.4	19 48.4	22 6 10.5	0 56	+0.1107	0.5470	-0.0483	+26	-30
B. A. C. 5580	5.7	3.55	+0.8	19 44.1	14 32.4	+7 59.9	-0.3128	0.5495	0.0340	+1	-56
B. A. C. 5758	6.6	3.71	0.5	21 25.4	23 1 49.5	5 5.3	+1.2664	0.5527	0.0140	+69	+62
ξ Ophiuchi	4.5	3.79	2.3	21 0.3	8 39.4	+1 30.9	+0.7495	0.5545	-0.0017	+69	+8
B. A. C. 6098	6.0	3.99	6.5	20 44.1	24 3 42.0	4 5.0	+0.7505	0.5588	+0.0326	+69	+8
15 Sagittarii	5.6	+4.04	+7.7	20 45.3	9 24.6	+1 25.9	+0.9909	0.5598	+0.0439	+69	+24
16 Sagittarii	6.2	4.03	7.8	20 24.9	9 25.1	+1 26.4	+0.6248	0.5598	0.0440	+60	0
17 Sagittarii	7.0	4.04	7.9	20 34.5	10 2.1	+2 2.1	+0.8238	0.5600	0.0451	+69	+12
21 Sagittarii	4.9	4.07	8.6	20 35.5	13 59.8	+5 51.7	+1.0337	0.5607	0.0524	+69	+27
B. A. C. 6287	5.7	4.05	9.6	18 47.3	16 13.0	+8 0.4	-0.7832	0.5609	0.0505	-23	-90
B. A. C. 6294	5.2	+4.04	+9.9	18 28.1	16 47.3	+8 33.6	-1.0946	0.5610	+0.0576	-45	-90
Lalande 35497	6.4	4.17	12.6	19 23.1	25 7 0.3	1 42.6	+0.8903	0.5627	0.0834	+71	+16
B. A. C. 6536	5.5	4.19	13.0	19 26.5	9 20.8	+0 32.9	+1.1492	0.5629	0.0876	+71	+38
δ Sagittarii	4.9	4.20	14.0	19 7.5	13 33.1	+4 36.6	+1.1940	0.5633	0.0950	+71	+43
ρ^1 Sagittarii	3.9	4.19	14.6	18 1.8	15 23.1	+6 22.8	+0.2079	0.5634	0.0982	+36	-24
ρ^2 Sagittarii	6.1	+4.20	+14.5	-18 29.3	15 26.9	+6 26.4	+0.6998	0.5634	+0.0983	+71	+4
B. A. C. 6658	7.3	4.22	15.1	18 33.3	18 14.9	+9 8.7	+1.0513	0.5636	0.1031	+71	+28
ϵ^1 Sagittarii	5.6	4.20	16.6	16 31.0	23 56.7	9 21.4	-0.4898	0.5639	0.1128	0	-69
ϵ^2 Sagittarii	5.0	4.20	16.8	16 21.1	26 0 45.2	-8 34.6	-0.5712	0.5640	0.1141	-5	-76
B. A. C. 6746	5.5	4.25	16.9	15 41.7	1 13.5	-8 7.2	-1.2087	0.5640	0.1149	-51	-90
γ Sagittarii	5.0	+4.22	+18.1	-15 45.0	7 40.7	-1 53.3	-0.3736	0.5642	+0.1255	+7	-60
B. A. C. 6992	6.2	4.24	20.0	15 5.5	17 54.8	+7 59.5	+0.3040	0.5643	0.1413	+47	-19
β Capricorni	3.4	4.24	20.0	15 5.3	18 1.1	+8 5.6	+0.3156	0.5643	0.1415	+47	-19
B. A. C. 7087	6.2	4.24	21.1	14 3.3	23 56.3	10 11.5	+0.1007	0.5644	0.1501	+35	-30
8 Aquarii	6.8	4.25	22.9	13 25.8	27 11 29.2	+0 57.5	+1.2719	0.5644	0.1655	+77	+51
ν Aquarii	4.6	+4.23	+23.6	11 46.0	15 50.7	+5 10.0	+0.2831	0.5644	+0.1709	+48	-20
B. A. C. 7408	6.9	4.20	24.5	9 54.5	21 25.7	+10 33.4	-0.8307	0.5644	0.1772	-14	-90
17 Aquarii	6.4	4.20	24.5	9 44.1	21 51.7	+10 58.6	-0.7607	0.5644	0.1777	-9	-90
19 Aquarii	5.7	4.21	24.5	10 9.8	22 52.6	+11 57.4	-0.1388	0.5644	0.1787	+26	-44
ξ Aquarii	4.8	4.19	25.3	8 17.5	28 4 31.1	6 35.8	-1.0345	0.5644	0.1846	-27	-90
B. A. C. 7562	5.5	+4.21	+25.3	9 29.1	7 43.6	-3 29.8	+0.7860	0.5644	+0.1876	+81	+8
ϵ^1 Capricorni	5.2	4.20	25.3	9 33.8	7 45.9	-3 27.0	+0.8394	0.5644	0.1877	+80	+11
ϵ^2 Capricorni	6.2	4.21	25.3	9 43.7	8 19.8	-2 54.9	+1.1461	0.5644	0.1882	+80	+34
30 Aquarii	5.6	4.18	26.2	6 59.6	15 59.0	+4 28.4	-0.1814	0.5646	0.1946	+24	-47
B. A. C. 7690	7.0	4.17	26.4	5 49.8	17 14.8	+5 41.6	-1.1215	0.5646	0.1956	-33	-90
B. A. C. 7704	7.3	+4.17	+26.4	-6 18.3	17 58.2	+6 23.6	-0.4947	0.5647	+0.1961	+8	-69
B. A. C. 7744	6.3	4.16	26.5	5 12.3	20 14.5	+8 35.1	-1.1705	0.5647	0.1977	-37	-90
B. A. C. 7752	6.7	4.16	26.6	4 56.1	20 45.0	+9 4.6	-1.3410	0.5648	0.1981	-64	-90
44 Aquarii	5.9	4.16	26.6	5 52.4	22 11.7	+10 28.3	-0.0981	0.5648	0.1990	+30	-42
51 Aquarii	5.8	4.16	26.8	5 19.8	29 1 20.2	-10 29.8	-0.0218	0.5650	0.2010	+34	-37
κ Aquarii	5.5	+4.14	+27.1	-4 43.7	7 26.9	4 35.7	+0.6080	0.5654	+0.2044	+77	-3
Lalande 44337	6.3	4.14	27.1	-4 3.6	8 48.4	-3 17.1	+0.2062	0.5655	0.2048	+48	-24
κ Piscium	5.0	4.09	26.8	+0 43.2	30 5 21.6	7 26.6	-0.3449	0.5678	0.2094	+17	-57
9 Piscium	6.6	4.09	26.8	0 35.1	5 30.0	7 18.5	-0.1799	0.5678	0.2094	+26	-46
15 Piscium	6.6	4.08	26.7	0 46.4	9 8.7	3 47.4	+0.3945	0.5684	0.2093	+60	-15
16 Piscium	5.6	+4.08	+26.6	+1 33.6	9 33.2	3 23.7	-0.3106	0.5684	+0.2093	+19	-54
λ Piscium	4.7	4.07	26.4	1 14.5	12 3.1	-0 59.1	+0.5311	0.5688	0.2090	+71	-6
19 Piscium	5.2	4.07	26.3	2 56.7	13 57.9	+0 51.8	-0.7786	0.5692	0.2087	-7	-87
22 Piscium	5.9	4.06	26.2	2 23.2	16 24.8	+3 13.4	+0.2914	0.5696	0.2082	+53	-20
25 Piscium	6.3	4.05	26.3	1 32.8	16 54.2	+3 41.8	+1.2362	0.5697	0.2081	+90	+43
51 Piscium	5.7	+4.02	+24.3	+6 24.9	31 10 3.8	3 45.1	-0.1283	0.5733	+0.2005	+29	-42
62 Piscium	6.0	4.00	23.5	6 46.0	16 55.4	+2 51.7	+0.8802	0.5751	0.1956	+90	+15
δ Piscium	4.6	+4.00	+23.4	+7 3.2	17 5.5	+3 1.5	+0.6261	0.5751	+0.1955	+80	0

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

SEPTEMBER.

THE STAR'S				AT CONJUNCTION IN R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$								
		s	"	°	d h m	h m				°	°
100 Piscium	6.8	+3.96	+19.7	+12 3.4	1 12 44.5	- 2 2.3	-0.7168	0.5805	+0.1759	- 4	-78
π Piscium	5.6	3.95	19.7	11 38.5	13 41.6	- 1 7.3	-0.1334	0.5808	0.1747	+29	-39
B. A. C. 490	7.5	3.95	19.6	11 34.7	13 55.7	- 0 53.7	-0.0299	0.5809	0.1745	+54	-34
19 Arietis	6.2	3.91	16.3	14 49.2	2 40.9	-10 41.4	-0.8471	0.5850	0.1541	-11	-75
29 Arietis	6.3	3.84	14.8	14 36.0	12 53.1	- 2 47.7	+0.5851	0.5872	0.1411	+77	+ 4
ϕ Arietis	5.8	+3.80	+13.7	+14 53.8	17 39.7	+ 1 48.1	+0.9433	0.5884	+0.1329	+90	+27
ρ^1 Arietis	7.0	3.82	12.1	17 20.1	21 52.3	+ 5 51.1	-0.9623	0.5892	0.1254	-31	-73
ρ^3 Arietis	5.5	3.83	11.8	17 37.9	22 28.5	+ 6 26.0	-1.1853	0.5895	0.1244	-41	-72
50 Arietis	6.8	3.80	11.6	17 36.9	3 0 9.2	+ 8 2.7	-0.9598	0.5899	0.1213	-21	-71
53 Arietis	6.3	3.77	11.1	17 30.0	2 57.9	+10 45.0	-0.5147	0.5905	0.1161	+ 7	-57
13 Tauri	5.4	+3.68	+ 7.4	+19 23.1	17 3.3	+ 0 18.0	-0.9734	0.5928	+0.0881	-22	-71
14 Tauri	6.4	3.68	7.3	19 21.3	17 38.5	+ 0 51.8	-0.8909	0.5929	0.0882	-16	-71
B. A. C. 1242	6.6	3.61	5.5	19 55.4	4 30.7	+ 7 34.0	-0.9117	0.5935	0.0725	-18	-70
ω^1 Tauri	5.8	3.56	5.0	19 20.9	3 51.2	+10 40.9	-0.1067	0.5938	0.0656	+30	-27
ω^2 Tauri	4.6	3.54	4.0	19 20.2	7 5.7	-10 12.1	-0.9060	0.5938	0.0586	-18	-70
W. B. 4 ^h 650	5.8	+3.44	+ 2.2	+20 29.2	15 31.5	- 2 5.9	-0.6439	0.5938	+0.0402	- 1	-62
λ Tauri	5.4	3.28	- 0.1	20 17.3	5 25.4	+ 9 20.5	-0.1212	0.5927	0.0139	+29	-23
107 Tauri	6.5	3.26	0.2	19 43.9	3 50.8	+ 9 44.8	+0.4521	0.5927	+0.0130	+66	+ 9
ζ Tauri	3.0	3.14	3.0	21 4.9	15 29.4	- 3 3.4	-0.9268	0.5918	-0.0127	-20	-69
B. A. C. 1796	7.5	3.06	2.7	18 56.3	17 29.8	- 1 7.6	+1.2393	0.5901	0.0170	+90	+65
127 Tauri	6.3	+3.06	- 2.7	+18 55.9	17 40.0	- 0 57.8	+1.2434	0.5899	-0.0176	+90	+65
B. A. C. 1867	7.2	3.03	4.0	20 16.4	21 54.0	+ 3 6.6	-0.2259	0.5888	0.0265	+23	-30
χ^1 Orionis	4.6	3.02	4.1	20 15.4	22 21.1	+ 3 32.7	-0.2203	0.5886	0.0273	+23	-30
χ^2 Orionis	5.8	3.01	3.9	19 43.8	22 34.5	+ 3 45.5	+0.3147	0.5886	0.0279	+56	0
χ^3 Orionis	5.1	2.97	4.6	19 41.5	6 2 4.0	+ 7 7.1	+0.2438	0.5875	0.0354	+51	- 5
χ^4 Orionis	4.8	+2.97	- 4.7	+20 8.4	2 15.1	+ 7 17.9	-0.2238	0.5874	-0.0358	+23	-31
68 Orionis	5.6	2.92	5.2	19 48.7	5 35.8	+10 30.9	-0.0170	0.5864	0.0428	+35	-20
71 Orionis	5.1	2.88	5.3	19 11.3	6 46.8	+11 39.3	+0.5715	0.5859	0.0453	+77	+13
16 Geminorum	6.8	2.85	6.6	20 33.2	12 11.1	- 7 8.6	-1.1108	0.5840	0.0563	-35	-69
ν Geminorum	4.0	2.83	6.5	20 16.4	12 36.8	- 6 43.8	-0.8454	0.5838	0.0572	-14	-70
22 Geminorum	7.2	+2.80	- 6.5	+19 30.2	15 0.2	- 4 25.7	-0.1941	0.5830	-0.0619	+25	-32
λ Geminorum	3.6	2.50	8.6	16 43.0	7 9 28.6	-10 47.9	+1.2256	0.5749	0.0967	+90	+57
W. B. 7 ^h 685	6.2	2.44	9.4	17 17.8	15 23.9	- 4 55.4	+0.0210	0.5721	0.1069	+37	-24
68 Geminorum	5.0	2.41	9.2	16 2.2	16 12.4	- 4 8.6	+1.2443	0.5717	0.1082	+90	+57
f Geminorum	5.2	2.41	10.0	17 53.8	18 44.3	- 1 42.1	-0.9726	0.5704	0.1124	-22	-72
1 Cancri	5.9	+2.29	-10.4	+16 3.1	8 2 29.6	+ 5 46.9	+0.0350	0.5665	-0.1245	+38	-25
5 Cancri	6.3	2.28	10.7	16 43.5	4 29.4	+ 7 42.5	-0.9214	0.5655	0.1275	-18	-73
29 Cancri	5.9	2.13	11.3	14 32.1	16 45.2	- 4 26.8	-0.2950	0.5593	0.1443	+19	-46
A ¹ Cancri	5.6	2.05	11.5	13 2.0	23 28.3	+ 2 2.7	+0.2901	0.5560	0.1525	+54	-14
A ² Cancri	5.8	2.03	11.4	12 28.2	9 1 12.4	+ 3 43.4	+0.6174	0.5552	0.1544	+80	+ 3
60 Cancri	5.7	+2.00	-11.7	+12 0.1	5 23.7	+ 7 46.4	+0.4569	0.5532	-0.1590	+65	- 7
α Cancri	4.3	1.99	11.9	12 14.3	6 35.2	+ 8 55.5	+0.0167	0.5525	0.1603	+37	-30
κ Cancri	5.0	1.95	11.8	11 3.8	10 57.3	-10 51.0	+0.5495	0.5504	0.1647	+73	- 2
ω Leonis	5.6	1.87	12.0	9 29.1	20 49.4	- 1 18.1	+0.5564	0.5460	0.1734	+73	+ 3
β Leonis	5.4	1.88	12.2	+10 8.6	22 30.1	+ 0 19.3	-0.4419	0.5452	0.1748	+12	-60
NEW MOON.											
ψ Virginis	5.0	+1.86	-10.7	- 9 0.3	14 5 14.1	+ 3 57.7	+1.0090	0.5254	-0.1757	+81	+23
δ Virginis	5.2	1.91	10.4	10 12.8	12 13.4	+10 44.6	+1.1313	0.5258	0.1706	+80	+33
B. A. C. 4394	5.9	1.90	10.1	8 27.4	12 34.2	+11 4.8	-0.8631	0.5261	0.1703	-15	-90
50 Virginis	6.3	+1.91	-10.3	- 9 48.2	13 11.2	+11 40.7	+0.5162	0.5261	-0.1699	+66	- 8
56 Virginis	7.0	1.93	10.2	9 50.9	15 45.8	- 9 49.3	+0.1298	0.5261	0.1678	+40	-29
58 Virginis	7.0	1.94	10.0	10 1.6	17 9.5	- 8 28.1	+0.0941	0.5263	0.1667	+38	-31
62 Virginis	7.0	1.96	10.0	10 47.2	18 38.2	- 7 1.9	+0.6862	0.5264	0.1654	+78	+ 2
α Virginis	1.2	1.97	9.8	10 38.8	21 7.9	- 4 36.7	+0.1224	0.5267	0.1633	+40	-29
86 Virginis	6.0	+2.06	- 9.1	-11 56.0	15 7 45.0	+ 5 41.4	-0.1410	0.5278	-0.1535	+23	-44

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

SEPTEMBER.

THE STAR'S				AT CONJUNCTION IN R. A.							Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H		y	x'	y'	N.	S.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m						
MARS		s	"	° ' "								
5 Libræ	6.6	+2.37	-6.7	15 37.8	16 10 24.8	17	33.0	+0.2117	0.5027	0.1132	+39	-24
α^1 Libræ	5.3	2.39	6.6	15 35.3	14 2.2	11	3.8	0.8469	0.5336	0.1190	-21	-90
α^2 Libræ	3.0	2.39	6.6	15 37.9	16 23.2	10	39.5	0.5203	0.5341	0.1157	-1	-72
μ^1 Libræ	5.4	2.48	5.6	15 52.5	16 28.9	10	34.0	-0.4817	0.5341	0.1157	+1	-68
μ^2 Libræ	6.9	+2.48	-5.7	16 6.2	17 0 17.2	3	0.2	1.0759	0.5359	0.1053	-39	-90
26 Libræ	6.5	2.55	5.6	17 24.0	0 22.7	2	51.8	0.8328	0.5359	-0.1052	-21	-90
28 Libræ	6.0	2.59	5.3	17 48.1	4 10.7	0	46.1	+0.2170	0.5368	0.0998	+38	-24
γ^2 Libræ	7.0	2.62	4.4	17 6.0	7 17.1	3	46.7	+0.3578	0.5375	0.0954	+46	-16
41 Libræ	5.7	2.71	4.4	18 58.6	11 33.2	7	51.8	0.8129	0.5385	0.0892	-22	-90
κ Libræ	5.0	+2.73	-4.3	19 21.6	16 4.2	11	42.7	-0.8795	0.5395	0.0825	+71	+16
47 Libræ	6.4	2.80	3.3	19 5.5	17 32.8	10	16.8	+1.1828	0.5399	-0.0802	+71	+43
β^1 Scorpii	2.7	2.86	2.6	19 32.1	23 53.0	4	8.7	+0.4083	0.5414	0.0704	+47	-13
ν Scorpii	4.2	2.89	2.0	19 12.3	4 54.5	0	43.3	+0.5642	0.5425	0.0625	+58	-4
ψ Ophiuchi	4.6	2.97	-1.3	19 48.4	8 4.0	3	46.8	+0.0092	0.5433	0.0574	+21	-35
B. A. C. 5580	5.7	+3.07	+0.2	19 44.1	13 51.3	+9	23.0	+0.3697	0.5446	0.0480	+42	-15
ξ Ophiuchi	4.5	3.30	2.8	21 0.3	22 19.3	6	25.4	-0.0557	0.5464	-0.0338	+15	-39
B. A. C. 6098	6.0	3.51	6.6	20 44.1	19 16 42.8	+11	22.0	+1.0102	0.5500	-0.0020	+69	+26
15 Sagittarii	5.6	3.58	7.7	20 45.3	20 12 6.7	+6	7.6	+1.0017	0.5530	+0.0325	+69	+26
16 Sagittarii	6.2	3.57	7.8	20 24.9	17 56.1	+11	45.3	+1.2403	0.5538	0.0428	+69	+53
17 Sagittarii	7.0	+3.57	+7.8	20 34.5	17 56.4	+11	45.6	+0.8710	0.5538	0.0439	+70	+16
21 Sagittarii	4.9	3.61	8.5	20 35.5	18 34.3	-11	37.7	+1.0710	0.5539	+0.0439	+69	+32
B. A. C. 6287	5.7	3.60	9.6	18 47.3	22 9.3	8	10.0	+0.2599	0.5543	0.0503	+30	-26
B. A. C. 6294	5.2	3.60	9.8	18 28.1	0 53.0	5	31.8	-0.5538	0.5546	0.0551	-10	-76
Lalande 35497	6.4	3.77	12.2	19 23.1	1 28.0	4	57.9	-0.8682	0.5547	0.0563	-29	-90
ρ^1 Sagittarii	3.9	+3.80	+14.2	-18 1.8	15 59.1	+9	4.0	+1.1192	0.5561	0.0814	+71	+35
ρ^2 Sagittarii	6.1	3.82	14.1	18 29.3	22 0 32.6	-6	39.7	+0.4218	0.5567	+0.0958	+50	-12
B. A. C. 6658	7.3	3.84	14.6	18 33.3	0 36.5	6	30.0	+0.9177	0.5568	0.0960	+72	+18
ϵ^1 Sagittarii	5.6	3.84	16.2	16 31.0	3 28.1	3	50.1	+1.2694	0.5570	0.1007	+71	+58
ϵ^2 Sagittarii	5.0	3.84	16.4	16 21.1	9 16.9	+1	46.8	-0.2919	0.5574	0.1102	+10	-55
B. A. C. 6746	5.5	+3.84	+16.6	-15 41.7	10 6.3	+2	34.6	-0.3752	0.5575	0.1115	+6	-60
γ Sagittarii	5.0	3.89	17.7	15 45.0	10 35.2	+3	2.5	-1.0184	0.5576	+0.1123	-34	-90
B. A. C. 6992	6.2	3.95	19.6	15 5.5	17 10.0	+9	24.0	-0.1857	0.5580	0.1227	+17	-47
β Capricorni	3.4	3.95	19.6	15 5.3	3 35.4	4	31.8	+0.4809	0.5587	0.1383	+58	-9
B. A. C. 7087	6.2	3.97	20.8	14 3.3	3 41.8	4	25.6	+0.4925	0.5587	0.1384	+59	-9
ν Aquarii	4.6	+4.04	+23.5	-11 46.0	9 42.8	+1	23.1	+0.2661	0.5589	0.1470	+45	-21
14 Aquarii	6.9	4.03	24.3	9 37.2	24 1 50.2	7	2.4	+0.4200	0.5605	+0.1677	+58	-13
B. A. C. 7408	6.9	4.05	24.6	9 44.5	4 54.5	-4	4.4	-1.2786	0.5608	0.1713	-54	-90
17 Aquarii	6.4	4.04	24.6	9 44.1	7 28.7	-1	35.5	-0.7080	0.5611	0.1742	-6	-90
19 Aquarii	5.7	4.06	24.5	10 9.8	7 54.9	1	10.1	-0.6389	0.5611	0.1747	-2	-82
ξ Aquarii	4.8	+4.07	+25.4	-8 17.5	8 56.5	0	10.6	-0.0166	0.5612	0.1758	+32	-37
B. A. C. 7562	5.5	4.10	25.6	9 29.1	14 37.6	+5	18.8	-0.9250	0.5618	+0.1817	-19	-90
ϵ^1 Capricorni	5.2	4.10	25.6	9 33.8	17 51.3	+8	25.9	+0.8925	0.5623	0.1848	+81	+15
ϵ^2 Capricorni	6.2	4.10	25.6	9 43.6	17 53.5	+8	28.0	+0.9449	0.5623	0.1849	+80	+18
30 Aquarii	5.6	4.11	26.7	6 59.6	18 27.7	+9	1.0	+1.2505	0.5623	0.1854	+80	+44
B. A. C. 7690	7.0	+4.11	+27.0	-5 49.7	25 2 8.6	-7	33.8	-0.0952	0.5635	0.1920	+29	-41
B. A. C. 7704	7.3	4.11	27.0	6 18.3	3 24.6	6	20.4	-1.0377	0.5637	+0.1931	-26	-90
B. A. C. 7744	6.3	4.12	27.3	5 12.1	4 8.1	-5	38.4	-0.4124	0.5638	0.1936	+12	-61
B. A. C. 7752	6.7	4.12	27.4	4 56.1	6 24.5	-3	26.7	-1.0928	0.5642	0.1953	-30	-90
44 Aquarii	5.9	4.13	27.3	5 52.4	6 54.9	-2	57.4	-1.2647	0.5643	0.1957	-48	-90
51 Aquarii	5.8	+4.14	+27.5	-5 19.8	8 21.7	-1	33.5	-0.0255	0.5646	0.1967	+34	-36
κ Aquarii	5.5	4.16	27.8	4 43.9	11 30.0	+1	28.2	+0.0437	0.5651	+0.1988	+40	-31
Lalande 44337	6.3	4.16	28.0	-4 3.6	17 35.8	+7	21.4	+0.6586	0.5663	0.2023	+82	0
κ Piscium	5.0	4.23	28.5	+0 43.3	18 56.9	+8	39.6	+0.2545	0.5666	0.2030	+51	-22
9 Piscium	6.6	4.23	28.5	+0 35.2	15 19.0	+4	18.8	-0.3412	0.5717	0.2086	+17	-56
15 Piscium	6.6	+4.24	+28.4	+0 46.4	15 27.4	+4	26.9	-0.1770	0.5718	0.2086	+26	-46
					19 2.9	+7	54.8	+0.3848	0.5728	+0.2086	+59	-15

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

SEPTEMBER.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	I'	x'	y'	N.	S.
		$\Delta\alpha$	$\Delta\delta$								
		s	"	°	d h m	h m				°	°
16 Piscium	5.6	+4.24	+28.5	+ 1 33.6	26 19 27.1	+ 8 18.2	-0.3153	0.5729	+0.2086	+19	-55
λ Piscium	4.7	4.24	28.2	1 14.6	21 54.7	+10 40.5	+0.5139	0.5737	0.2085	+69	- 8
19 Piscium	5.2	4.26	28.3	2 56.7	23 47.6	-11 30.6	-0.7902	0.5742	0.2083	- 8	-87
22 Piscium	5.9	4.27	28.2	2 23.3	27 2 12.1	- 9 11.2	+0.2662	0.5750	0.2079	+51	-21
25 Piscium	6.3	4.26	28.1	1 23.9	2 40.9	- 8 43.5	+1.2017	0.5751	0.2078	+90	+39
51 Piscium	5.7	+4.33	+26.8	+ 6 25.0	19 29.1	+ 7 28.2	-0.1883	0.5809	+0.2010	+25	-46
60 Piscium	6.2	4.33	26.2	6 12.5	28 1 48.4	-10 26.5	+1.2741	0.5832	0.1966	+90	+50
62 Piscium	6.0	4.35	26.1	6 46.0	2 10.5	-10 5.2	+0.7936	0.5833	0.1964	+90	+10
δ Piscium	4.6	4.35	26.0	7 3.2	2 20.4	- 9 55.6	+0.5430	0.5834	0.1962	+72	- 5
100 Piscium	6.8	4.43	22.8	12 3.5	21 26.4	+ 8 27.4	-0.8192	0.5905	0.1770	-10	-78
π Piscium	5.6	+4.42	+22.7	+11 38.5	22 21.7	+ 9 20.7	-0.2457	0.5908	+0.1759	+22	-46
B. A. C. 490	7.5	4.43	22.5	11 34.8	22 35.5	+ 9 33.9	-0.1437	0.5909	0.1744	+28	-40
19 Arietis	6.2	4.47	19.3	14 49.3	29 12 53.1	- 0 41.5	-0.9723	0.5957	0.1553	-21	-75
29 Arietis	6.3	4.43	17.7	14 36.1	20 49.5	+ 6 56.4	+0.4269	0.5980	0.1422	+63	- 5
σ Arietis	5.8	4.42	16.5	14 53.8	30 1 26.8	+11 22.9	+0.7733	0.5992	0.1340	+90	+16
ρ^1 Arietis	7.0	+4.47	+15.1	+17 20.2	5 31.4	- 8 42.1	-1.1085	0.6002	+0.1265	-33	-73
50 Arietis	6.8	4.47	14.5	17 37.0	7 43.7	- 6 34.8	-1.1114	0.6006	0.1222	-34	-72
53 Arietis	6.3	+4.45	+13.8	+17 30.1	10 27.2	- 3 58.0	-0.6735	0.6011	+0.1169	- 2	-70

OCTOBER.

13 Tauri	5.4	+4.41	+ 9.8	+19 23.2	1 0 6.5	+ 9 8.8	-1.1394	0.6029	+0.0888	-38	-71
14 Tauri	6.4	+4.1	9.7	19 21.3	0 40.6	+ 9 41.5	-1.0586	0.6029	0.0875	-30	-71
B. A. C. 1242	6.6	4.38	7.7	19 55.5	7 26.6	- 7 48.6	-1.0850	0.6031	0.0729	-33	-70
ω^1 Tauri	5.8	4.33	7.0	19 21.0	10 35.5	- 4 47.3	-0.2938	0.6030	0.0658	+19	-38
ω^2 Tauri	4.6	+4.32	+ 5.9	+20 20.2	13 44.7	- 1 45.6	-1.0843	0.6030	+0.0588	-34	-70
W. B. 4 ^b 650	5.8	4.25	3.7	20 29.2	21 57.2	+ 6 7.3	-0.8312	0.6020	0.0403	-13	-70
B. A. C. 1468	6.3	4.16	3.4	18 33.4	2 1 7.6	+ 9 10.2	+1.2230	0.6015	0.0330	+90	+62
i Tauri	5.1	4.14	2.9	18 40.3	3 7.4	+11 5.2	+1.1694	0.6012	0.0285	+90	+56
l Tauri	5.4	4.10	0.7	20 17.3	9 34.4	- 6 43.0	-0.3201	0.5997	0.0138	+18	-35
107 Tauri	6.5	+4.08	+ 0.8	+19 43.9	.9 59.3	- 6 19.2	+0.2474	0.5996	+0.0128	+51	- 2
ζ Tauri	3.0	3.95	- 2.6	21 4.9	21 24.2	+ 4 38.9	+1.1209	0.5959	-0.0128	-38	-69
B. A. C. 1796	7.5	3.89	2.3	18 56.3	23 22.5	+ 6 32.5	+1.0243	0.5952	0.0171	+90	+44
127 Tauri	6.3	3.88	2.4	18 55.9	23 32.5	+ 6 42.2	+1.0283	0.5952	0.0175	+90	+44
B. A. C. 1867	7.2	3.87	3.8	20 16.4	3 3 42.5	+10 42.5	-0.4276	0.5934	0.0266	+11	-43
χ^1 Orionis	4.6	+3.85	- 3.9	+20 15.4	4 8.8	+11 7.8	-0.4220	0.5933	-0.0276	+12	-43
χ^2 Orionis	5.8	3.84	3.7	19 43.8	4 22.4	+11 20.8	+0.1083	0.5932	0.0280	+42	-12
χ^3 Orionis	5.1	3.79	4.5	19 41.5	7 48.8	- 9 20.7	+0.0381	0.5917	0.0355	+38	-17
χ^4 Orionis	4.8	3.80	4.7	20 8.4	7 59.7	- 9 10.2	-0.4257	0.5916	0.0358	+14	-44
68 Orionis	5.6	3.75	5.4	19 48.7	11 17.7	- 5 59.8	-0.2208	0.5900	0.0428	+23	-31
71 Orionis	5.1	+3.71	- 5.4	+19 11.3	12 27.9	- 4 52.3	+0.3638	0.5895	-0.0453	+59	+ 1
ν Geminorum	4.0	3.66	7.0	20 16.4	18 14.0	+ 0 40.7	-1.0425	0.5867	0.0571	-29	-70
22 Geminorum	7.2	3.62	7.1	19 30.2	20 36.0	+ 2 57.4	-0.3950	0.5854	0.0618	+13	-44
26 Geminorum	5.0	3.52	7.4	17 44.4	23 51.0	+ 6 5.1	+1.2054	0.5838	0.0682	+90	+56
λ Geminorum	3.6	3.27	9.7	16 43.0	4 14 57.7	- 3 21.4	+1.0257	0.5752	0.0961	+90	+36
W. B. 7 ^b 685	6.2	+3.20	-10.9	+17 17.7	20 52.3	+ 2 20.4	-0.1716	0.5717	-0.1060	+26	-35
67 Geminorum	7.5	3.16	10.5	15 50.9	21 35.7	+ 3 2.2	+1.2555	0.5712	0.1072	+90	+59
68 Geminorum	5.0	3.17	10.6	16 2.1	21 40.8	+ 3 7.2	+1.0519	0.5712	0.1073	+90	+37
f Geminorum	5.2	3.16	11.6	17 53.8	5 0 12.6	+ 5 33.5	-1.1610	0.5698	0.1114	-39	-72
1 Cancri	5.9	3.02	12.0	16 3.1	7 58.4	-10 57.0	-1.1501	0.5650	0.1232	+27	-35
5 Cancri	6.3	+3.01	-12.6	+16 43.5	9 58.6	- 9 1.0	-1.1044	0.5639	-0.1261	-33	-73
27 Cancri	5.6	2.79	12.8	12 58.7	21 27.2	+ 2 4.1	+1.2894	0.5572	0.1415	+90	+61
29 Cancri	5.9	2.80	13.3	14 32.1	22 17.8	+ 2 53.1	-0.4688	0.5567	0.1425	+10	-58
A ¹ Cancri	5.6	2.70	13.5	13 1.9	6 5 3.6	+ 9 25.2	+0.1240	0.5530	0.1504	+43	-23
A ² Cancri	5.8	2.67	13.5	12 28.2	6 48.5	+11 6.7	+0.4536	0.5520	0.1524	+65	- 6
60 Cancri	5.7	+2.62	-13.7	+12 0.0	11 1.8	- 8 48.3	+0.2978	0.5498	-0.1568	+54	-15

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

OCTOBER.

THE STAR'S				AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.	Apparent Declination.	Washington Mean Time.	Hour Angle, H	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$							
		<i>s</i>	<i>"</i>	<i>°</i>	<i>d h m</i>	<i>h m</i>			<i>°</i>	<i>°</i>
<i>a</i> Cancri	4.3	+2.61	-13.9	+12 14.2	6 12 13.9	- 7 38.6	-0.1419	0.5492	-0.1580	+28 -39
<i>k</i> Cancri	5.0	2.54	13.9	11 3.8	16 38.4	- 3 22.7	+0.3973	0.5469	0.1623	+61 -10
ω Leonis	5.6	2.43	14.1	9 29.0	7 2 36.5	+ 6 16.3	+0.4170	0.5422	0.1708	+62 -10
<i>h</i> Leonis	5.4	2.41	14.4	10 8.9	4 18.3	+ 7 54.9	-0.5825	0.5415	0.1721	+ 4 -71
14 Sextantis	6.6	2.23	14.0	6 5.4	21 31.2	+ 0 35.7	+0.7015	0.5346	0.1828	+89 + 4
16 Sextantis	6.9	+2.22	-14.2	+ 6 39.1	22 44.5	+ 1 46.7	-0.1255	0.5342	-0.1833	+29 -42
19 Sextantis	6.0	2.20	13.9	5 6.0	8 0 32.3	+ 3 31.2	+1.2135	0.5335	0.1842	+90 +42
34 Sextantis	6.6	2.08	13.9	4 5.8	15 38.1	- 5 50.3	-0.5250	0.5292	0.1893	+ 7 -69
36 Sextantis	6.6	2.08	13.7	3 0.3	16 56.0	- 4 34.8	+0.4098	0.5289	0.1896	+61 -13
55 Leonis	6.0	2.05	13.4	1 15.7	22 20.2	+ 0 39.8	+1.2732	0.5279	0.1905	+90 +47
<i>p</i> ² Leonis	6.2	+2.02	-13.3	+ 0 31.7	9 2 24.6	+ 4 37.0	+1.2925	0.5268	-0.1909	+90 +51
<i>p</i> ⁵ Leonis	5.5	1.99	13.2	+ 0 27.9	7 38.7	+ 9 41.8	+0.3619	0.5260	0.1912	+58 -18
<i>v</i> Leonis	4.5	1.94	12.8	- 0 16.8	19 39.9	- 2 38.3	-1.1220	0.5246	0.1904	-32 -90
NEW MOON.										
5 Libræ	6.6	+2.16	- 5.6	-15 2.6	13 20 46.6	- 4 24.3	-0.7461	0.5354	-0.1182	-10 -88
<i>a</i> ¹ Libræ	5.3	2.18	5.5	15 35.2	23 7.4	- 2 7.8	-0.4163	0.5359	0.1152	+ 4 -63
<i>a</i> ³ Libræ	3.0	2.18	5.5	15 37.9	23 13.1	- 2 2.3	-0.3775	0.5359	0.1150	+ 6 -60
<i>v</i> ¹ Libræ	5.4	2.23	4.5	15 52.5	14 7 1.1	+ 5 31.4	-0.9652	0.5376	0.1046	-30 -90
<i>v</i> ² Libræ	6.9	2.23	4.6	16 6.1	7 6.6	+ 5 36.7	-0.7215	0.5376	0.1045	-14 -90
26 Libræ	6.5	+2.28	- 4.3	-17 24.0	10 54.6	+ 9 17.6	+0.3342	0.5384	-0.0991	+44 -17
28 Libræ	6.0	2.31	4.0	17 48.0	14 1.0	-11 41.8	+0.4783	0.5390	0.0947	+54 - 9
γ ² Libræ	7.0	2.32	3.3	17 6.0	18 17.2	- 7 33.6	-0.6917	0.5400	0.0885	-14 -90
41 Libræ	5.7	2.40	2.9	18 58.6	22 48.3	- 3 11.0	+1.0093	0.5409	0.0820	+71 +26
47 Libræ	6.4	2.45	2.0	19 5.5	15 6 38.0	+ 4 23.9	+0.5427	0.5424	0.0698	+56 - 5
β ¹ Scorpii	2.7	+2.50	- 1.4	-19 32.1	11 40.2	+ 9 16.5	+0.7040	0.5433	-0.0619	+69 + 5
<i>v</i> Scorpii	4.2	2.52	0.9	19 12.2	14 50.3	-11 39.4	+0.1481	0.5438	0.0568	+29 -27
ψ Ophiuchi	4.6	2.58	- 0.2	19 48.4	20 39.0	- 6 1.8	+0.5137	0.5448	0.0473	+52 - 7
B. A. C. 5580	5.7	2.65	+ 1.2	19 44.1	16 5 9.8	+ 2 12.6	+0.0910	0.5460	0.0332	+23 -30
29 Ophiuchi	6.8	2.72	2.9	18 44.3	14 41.4	+11 25.8	-1.2504	0.5472	0.0171	-65 -90
ξ Ophiuchi	4.5	+2.85	+ 3.5	-21 0.3	23 42.6	- 3 50.5	+1.1705	0.5481	-0.0016	+69 +43
B. A. C. 6098	6.0	3.02	6.9	20 44.1	17 19 21.7	- 8 49.8	+1.1689	0.5494	+0.0324	+69 +42
16 Sagittarii	6.2	3.07	8.1	20 24.9	18 1 17.6	- 3 5.5	+1.0382	0.5496	0.0426	+70 +29
17 Sagittarii	7.0	3.07	8.2	20 34.5	1 56.1	- 2 28.3	+1.2404	0.5496	0.0437	+69 +54
B. A. C. 6287	5.7	3.09	9.6	18 47.3	8 21.8	+ 3 44.8	-0.3991	0.5498	0.0546	- 1 -62
B. A. C. 6294	5.2	+3.09	+ 9.8	-18 28.1	8 57.4	+ 4 19.3	-0.7168	0.5498	+0.0556	-20 -90
ρ ¹ Sagittarii	3.9	3.30	13.7	18 1.8	19 8 32.9	+ 3 8.3	+0.5832	0.5499	0.0944	+62 - 3
ρ ² Sagittarii	6.1	3.32	13.5	18 29.3	8 37.0	+ 3 12.2	+1.0848	0.5500	0.0945	+72 +32
<i>e</i> ¹ Sagittarii	5.6	3.36	15.6	16 31.0	17 30.8	+11 48.5	-0.1416	0.5500	0.1084	+18 -44
<i>e</i> ² Sagittarii	5.0	3.37	15.8	16 21.1	18 21.6	-11 22.4	-0.2257	0.5500	0.1097	+15 -50
B. A. C. 6746	5.5	+3.36	+16.1	-15 41.7	18 51.3	-10 53.6	-0.8772	0.5500	+0.1104	-24 -90
γ Sagittarii	5.0	3.42	17.0	15 45.0	20 1 36.8	- 4 21.4	-0.0373	0.5500	0.1205	+25 -38
B. A. C. 6992	6.2	3.50	18.7	15 5.5	12 20.0	+ 6 0.6	+0.6310	0.5502	0.1357	+70 0
β Capricorni	3.4	3.50	18.7	15 5.3	12 26.6	+ 6 7.0	+0.6442	0.5503	0.1358	+71 0
B. A. C. 7087	6.2	3.54	19.8	14 3.4	18 38.2	-11 53.6	+0.4115	0.5505	0.1441	+54 -13
<i>v</i> Aquarii	4.6	+3.65	+22.4	-11 46.0	21 11 14.1	+ 4 9.5	+0.5555	0.5516	+0.1643	+67 - 5
14 Aquarii	6.9	3.64	23.2	9 37.3	14 23.7	+ 7 12.9	-1.1671	0.5520	0.1678	-40 -90
B. A. C. 7408	6.9	3.67	23.6	9 44.5	17 2.5	+ 9 46.4	-0.5912	0.5522	0.1706	0 -77
17 Aquarii	6.4	3.67	23.6	9 44.1	17 29.4	+10 12.5	-0.5217	0.5523	0.1711	+ 4 -70
19 Aquarii	5.7	3.69	23.5	10 9.8	18 32.7	+11 13.6	+0.1071	0.5524	0.1722	+39 -28
ξ Aquarii	4.8	+3.73	+24.8	- 8 17.5	22 0 23.5	- 7 7.2	-0.8172	0.5533	+0.1780	-13 -90
B. A. C. 7562	5.5	3.76	24.6	9 29.1	3 42.6	- 3 54.7	+1.0149	0.5538	0.1811	+81 +23
<i>a</i> ¹ Capricorni	5.2	3.76	24.6	9 33.8	3 44.8	- 3 52.6	+1.0722	0.5538	0.1811	+80 +28
30 Aquarii	5.6	3.76	26.0	6 59.6	12 13.2	+ 4 18.8	+0.0111	0.5554	0.1883	+34 -35
B. A. C. 7690	7.0	3.82	26.4	5 49.8	13 31.1	+ 5 34.1	-0.9432	0.5557	0.1893	-19 -90
B. A. C. 7704	7.3	+3.82	+26.3	- 6 18.3	14 15.8	+ 6 17.3	-0.3116	0.5558	+0.1899	+18 -54

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

OCTOBER.

THE STAR'S					AT CONJUNCTION IN R. A.							Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.		
		$\Delta\alpha$	$\Delta\delta$										
		s	"	°	d h m	h m						°	°
B. A. C. 7744	6.3	+3.84	+26.7	- 5 12.1	22 16 35.5	+ 8 32.3	-1.0019	0.5564	+0.1916	-23	-90		
B. A. C. 7752	6.7	3.86	26.8	4 56.1	17 6.8	+ 9 2.6	-1.1755	0.5565	0.1920	-35	-90		
44 Aquarii	5.9	3.87	26.6	5 52.4	18 35.7	+10 28.6	+0.0750	0.5570	0.1932	+39	-32		
51 Aquarii	5.8	3.88	26.9	5 19.8	21 48.5	-10 25.2	+0.1414	0.5577	0.1951	+43	-28		
κ Aquarii	5.5	3.92	27.2	4 43.9	23 4 2.5	- 4 23.7	+0.7542	0.5594	0.1987	+80	+ 6		
Lalande 44337	6.3	+3.94	+27.5	- 4 3.6	5 25.4	- 3 3.7	+0.3450	0.5598	+0.1994	+17	-57		
κ Piscium	5.0	4.11	28.5	+ 0 43.3	24 2 9.0	- 7 2.9	-0.2805	0.5672	0.2057	+20	-52		
9 Piscium	6.6	4.11	28.5	0 35.2	2 17.5	- 6 54.7	-0.1156	0.5672	0.2057	+29	-42		
15 Piscium	6.6	4.14	28.5	0 46.4	5 55.8	- 3 24.0	+0.4444	0.5687	0.2059	+64	-11		
16 Piscium	5.6	4.14	28.7	1 33.6	6 20.2	- 3 0.5	-0.2606	0.5689	0.2059	+21	-51		
λ Piscium	4.7	+4.16	+28.3	+ 1 14.6	8 49.5	- 0 36.5	+0.5700	0.5700	+0.2059	+74	- 5		
19 Piscium	5.2	4.19	28.7	2 56.7	10 43.6	+ 1 13.8	-0.7418	0.5708	0.2058	- 5	-84		
22 Piscium	5.9	4.21	28.4	2 23.3	13 9.4	+ 3 34.3	+0.3153	0.5719	0.2055	+54	-18		
25 Piscium	6.3	4.21	28.2	1 32.9	13 38.5	+ 4 2.3	+1.2534	0.5721	0.2054	+90	+45		
51 Piscium	5.7	4.38	27.6	6 25.0	25 6 31.2	- 3 41.4	-0.1630	0.5805	0.1995	+27	-44		
60 Piscium	6.2	+4.42	+26.8	+ 6 12.5	12 50.1	+ 2 23.5	+1.2894	0.5838	+0.1955	+90	+53		
62 Piscium	6.0	4.44	26.9	6 46.0	13 12.2	+ 2 44.8	+0.8096	0.5840	0.1953	+90	+11		
δ Piscium	4.6	4.44	26.8	7 3.2	13 22.0	+ 2 54.3	+0.5583	0.5841	0.1952	+73	- 4		
100 Piscium	6.8	4.64	24.3	12 3.5	26 8 19.3	- 2 51.4	-0.8221	0.5943	0.1796	-10	-78		
π Piscium	5.6	4.65	24.1	11 38.5	9 13.9	- 1 58.9	-0.2530	0.5947	0.1758	+22	-46		
B. A. C. 490	7.5	+4.65	+24.0	+11 34.8	9 27.5	- 1 45.8	-0.1519	0.5949	+0.1756	+27	-40		
19 Arietis	6.2	4.79	21.1	14 49.3	23 31.5	+11 45.2	-0.9889	0.6019	0.1558	-23	-75		
29 Arietis	6.3	4.81	19.2	14 36.1	27 7 17.9	- 4 47.0	+0.3884	0.6054	0.1428	+60	- 7		
σ Arietis	5.8	4.83	18.0	14 53.9	11 48.9	- 0 26.9	+0.7261	0.6072	0.1347	+90	+13		
ρ^1 Arietis	7.0	4.91	16.8	17 20.2	15 47.3	+ 3 21.9	-1.1380	0.6087	0.1272	-36	-73		
50 Arietis	6.8	+4.92	+16.2	+17 37.0	17 56.4	+ 5 25.7	-1.1425	0.6094	+0.1230	-37	-72		
53 Arietis	6.3	4.92	15.5	17 30.1	20 35.4	+ 7 58.3	-0.7121	0.6102	0.1177	- 5	-72		
13 Tauri	5.4	4.98	11.3	19 23.2	28 9 50.7	- 3 18.9	-1.1819	0.6133	0.0895	-43	-71		
14 Tauri	6.4	4.99	11.2	19 21.3	10 23.9	- 2 47.1	-1.1026	0.6134	0.0882	-34	-71		
B. A. C. 1242	6.6	4.98	9.0	19 55.5	16 56.8	+ 3 29.7	-1.1333	0.6141	0.0734	-38	-70		
ω^1 Tauri	5.8	+4.95	+ 8.2	+19 21.0	19 59.6	+ 6 24.9	-0.3562	0.6142	+0.0663	+15	-42		
ω^2 Tauri	4.6	4.97	7.0	20 20.2	23 2.5	+ 9 20.2	-1.1363	0.6142	0.0592	-38	-70		
W. B. 4 ^b 650	5.8	4.93	4.5	20 29.2	29 6 58.2	- 7 3.8	-0.8920	0.6137	0.0404	-17	-70		
B. A. C. 1468	6.3	4.85	3.8	18 33.4	10 1.9	- 4 7.7	+1.1264	0.6132	0.0331	+90	+51		
ζ Tauri	5.1	4.84	3.3	18 40.3	11 57.6	- 2 16.7	+1.0725	0.6128	0.0285	+90	+47		
ζ Tauri	5.4	+4.84	+ 1.0	+20 17.3	18 11.0	+ 3 41.4	-0.3958	0.6114	+0.0137	+13	-40		
107 Tauri	6.5	4.82	+ 1.0	19 43.9	18 35.0	+ 4 4.4	+0.1609	0.6113	+0.0125	+45	- 7		
ζ Tauri	3.0	4.76	- 2.5	21 4.9	30 5 36.0	- 9 21.5	-1.1901	0.6074	-0.0134	-46	-69		
B. A. C. 1796	7.5	4.67	2.8	18 56.3	7 30.2	- 7 32.0	+0.9197	0.6066	0.0178	+90	+36		
127 Tauri	6.3	4.66	2.8	18 55.9	7 39.8	- 7 22.7	+0.9236	0.6065	0.0183	+90	+37		
B. A. C. 1867	7.2	+4.67	- 4.4	+20 16.4	11 41.1	- 3 31.1	-0.5101	0.6047	-0.0275	+ 7	-49		
χ^1 Orionis	4.6	4.65	4.5	20 15.4	12 6.5	- 3 6.7	-0.5042	0.6045	0.0284	+ 7	-49		
χ^2 Orionis	5.8	4.64	4.3	19 43.8	12 19.6	- 2 54.2	+0.0172	0.6044	0.0289	+37	-17		
χ^3 Orionis	5.1	4.60	5.3	19 41.5	15 39.0	+ 0 17.3	-0.0530	0.6027	0.0363	+33	-21		
χ^4 Orionis	4.8	4.61	5.4	20 8.4	15 49.5	+ 0 27.4	-0.5092	0.6026	0.0368	+ 7	-50		
68 Orionis	5.6	+4.57	- 6.3	+19 48.6	19 1.0	+ 3 31.2	-0.3088	0.6009	-0.0438	+18	-37		
71 Orionis	5.1	4.53	6.4	19 11.3	20 8.7	+ 4 36.3	-0.2660	0.6002	0.0463	+52	- 5		
ν Geminorum	4.0	4.50	8.2	20 16.4	31 1 43.6	+ 9 53.0	-1.1196	0.5969	0.0583	-36	-70		
22 Geminorum	7.2	4.45	8.4	19 30.2	4 1.0	-11 49.9	-0.4831	0.5935	0.0631	+ 8	-51		
26 Geminorum	5.0	+4.35	- 8.9	+17 44.4	7 9.8	- 8 48.4	+1.0920	0.5935	-0.0695	+90	+45		
NOVEMBER													
W. B. 7 ^b 685	6.2	+4.04	-13.3	+17 17.7	1 3 35.0	+10 50.7	-0.2669	0.5794	-0.1074	+21	-40		
68 Geminorum	5.0	3.99	13.0	16 2.1	4 22.3	+11 36.2	+0.9405	0.5787	0.1087	+90	+29		
f Geminorum	5.2	+4.01	-14.1	+17 53.8	6 50.2	-10 1.3	-1.2435	0.5769	-0.1127	-51	-72		

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER.

THE STAR'S				AT CONJUNCTION IN R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	<i>N.</i>	<i>S.</i>
		$\Delta\alpha$	$\Delta\delta$								
		s	"	°	d h m	h m				°	'
1 Cancri	5.9	+3.86	-14.9	+16 3.1	1 14 25.2	- 2 42.6	-0.2461	0.5715	-0.1245	+22	-41
5 Cancri	6.3	3.84	15.5	16 43.4	16 22.6	- 0 49.4	-1.1888	0.5700	0.1273	-42	-73
27 Cancri	5.6	3.62	15.9	12 58.6	2 3 37.5	+10 1.9	+1.1802	0.5619	0.1424	+90	+45
29 Cancri	5.9	3.62	16.4	14 32.0	4 27.3	+10 50.0	-0.5600	0.5613	0.1434	+ 5	-65
A ¹ Cancri	5.6	3.51	16.9	13 1.9	11 6.3	- 6 44.6	-0.0282	0.5507	0.1511	+37	-29
A ² Cancri	5.8	+3.47	-16.8	+12 28.1	12 49.6	- 5 4.7	+0.3553	0.5549	-0.1530	+58	-11
60 Cancri	5.7	3.41	17.2	12 0.0	16 59.4	- 1 3.2	+0.2019	0.5528	0.1573	+48	-20
α Cancri	4.3	3.40	17.4	12 14.1	18 10.5	+ 0 5.5	-0.2337	0.5521	0.1585	+23	-44
κ Cancri	5.0	3.32	17.4	11 3.7	22 31.9	+ 4 18.3	+0.3016	0.5494	0.1626	+54	-15
ω Leonis	5.6	3.18	17.8	9 29.1	3 8 24.1	-10 8.7	+0.3256	0.5435	0.1708	+55	-15
3 Leonis	6.0	+3.17	-17.5	+ 8 36.9	8 25.8	-10 7.0	+1.2399	0.5435	-0.1708	+90	+47
λ Leonis	5.4	3.16	18.1	10 8.8	10 5.1	- 8 30.9	-0.6674	0.5427	0.1720	- 1	-78
14 Sextantis	6.6	2.92	17.7	6 5.4	4 3 12.6	+ 8 4.5	+0.6182	0.5342	0.1821	+59	0
16 Sextantis	6.9	2.92	17.9	6 39.1	4 25.8	+ 9 15.4	-0.2055	0.5337	0.1826	+24	-46
19 Sextantis	6.0	2.88	17.5	5 5.9	6 13.5	+10 59.8	+1.1296	0.5329	0.1834	+90	+33
34 Sextantis	6.6	+2.72	-17.5	+ 4 5.7	21 19.1	+ 1 38.1	-0.5959	0.5276	-0.1881	+ 3	-76
36 Sextantis	6.6	2.71	17.2	3 0.2	22 37.2	+ 2 53.8	+0.3379	0.5273	0.1884	+56	-17
55 Leonis	6.0	2.67	16.7	1 15.6	5 4 2.2	+ 8 9.2	+1.2035	0.5257	0.1892	+90	+40
ρ^2 Leonis	6.2	2.62	16.5	0 31.6	8 7.4	-11 52.9	+1.2255	0.5247	0.1896	+90	+42
ρ^b Leonis	5.5	2.58	16.4	+ 0 27.9	13 22.7	- 6 46.9	+0.2989	0.5237	0.1897	+53	-19
ν Leonis	4.5	+2.48	-16.0	- 0 16.9	6 1 27.6	+ 4 56.8	-1.1785	0.5220	-0.1888	-37	-90
χ Virginis	4.7	2.32	12.8	7 27.3	7 10 6.6	-11 21.0	+0.6779	0.5222	0.1774	+81	+ 1
28 Virginis	7.0	2.31	12.8	6 57.6	11 31.7	- 9 58.4	-0.1190	0.5223	0.1766	+28	-42
ψ Virginis	5.0	2.30	12.0	9 0.3	17 59.8	- 3 41.6	+1.0089	0.5231	0.1727	+81	+23
δ Virginis	5.2	2.29	11.3	10 12.9	8 1 2.5	+ 3 8.8	+1.1464	0.5241	0.1679	+80	+35
B. A. C. 4394	5.9	+2.27	-11.5	- 8 27.4	1 23.5	+ 3 29.1	-0.8558	0.5242	-0.1677	-15	-90
50 Virginis	6.3	2.28	11.3	9 48.3	2 0.8	+ 4 5.3	+0.5306	0.5244	0.1673	+67	- 7
56 Virginis	7.0	2.27	11.1	9 50.9	4 36.4	+ 6 36.4	+0.1480	0.5245	0.1653	+41	-27
58 Virginis	7.0	2.26	10.9	10 1.7	6 0.7	+ 7 58.2	+0.1150	0.5250	0.1642	+39	-29
62 Virginis	7.0	2.27	10.6	10 47.2	7 29.9	+ 9 24.8	+0.7126	0.5253	0.1633	+79	+ 3
α Virginis	1.2	+2.26	-10.5	-10 38.9	10 0.6	+11 51.0	+0.1512	0.5258	-0.1610	+41	-27
NEW MOON.											
ψ Ophiuchi	4.6	+2.47	+ 0.4	-19 48.4	12 2 47.9	+ 1 54.6	+0.5251	0.5467	-0.0473	+53	- 6
B. A. C. 5580	5.7	2.50	1.8	19 44.1	11 17.5	+10 7.7	+0.1034	0.5480	0.0332	+24	-30
29 Ophiuchi	6.8	+2.50	+ 3.3	-18 44.3	20 48.1	- 4 41.1	-1.2394	0.5491	-0.0171	-66	-90
ξ Ophiuchi	4.5	2.62	4.2	21 0.3	13 5 48.8	+ 4 2.2	+1.1876	0.5497	-0.0015	+69	+45
B. A. C. 6098	6.0	2.71	7.3	20 44.1	14 1 29.2	- 0 54.9	+1.1886	0.5501	+0.0324	+69	+45
16 Sagittarii	6.2	2.74	8.2	20 24.9	7 26.3	+ 4 50.6	+1.0582	0.5499	0.0426	+70	+31
17 Sagittarii	7.0	2.75	8.3	20 34.5	8 5.0	+ 5 28.0	+1.2611	0.5499	0.0437	+70	+25
B. A. C. 6287	5.7	+2.75	+ 9.6	-18 47.3	14 32.6	+11 43.0	-0.3865	0.5495	+0.0546	- 1	-61
B. A. C. 6294	5.2	2.75	9.8	18 28.1	15 8.4	-11 42.3	-0.7058	0.5495	0.0556	-19	-90
ρ^1 Sagittarii	3.9	2.90	13.4	18 1.8	15 4 56.9	+11 19.8	+0.6010	0.5475	0.0939	+63	- 2
ρ^2 Sagittarii	6.1	2.92	13.1	18 29.3	15 1.0	+11 23.7	+1.1066	0.5475	0.0940	+72	+34
ϵ^1 Sagittarii	5.6	2.95	14.9	16 31.0	16 0 2.2	- 3 52.6	-0.1311	0.5466	0.1076	+19	-44
ϵ^2 Sagittarii	5.0	+2.95	+15.1	-16 21.1	0 53.8	- 3 2.7	-0.2165	0.5465	+0.1089	+15	-49
B. A. C. 6746	5.5	2.95	15.2	15 41.8	1 24.0	- 2 33.4	-0.8735	0.5464	0.1096	-24	-90
γ Sagittarii	5.0	2.99	16.2	15 45.0	8 16.5	+ 4 5.9	-0.0268	0.5458	0.1194	+25	-37
B. A. C. 6992	6.2	3.07	17.7	15 5.5	19 12.5	- 9 19.2	+0.6491	0.5448	0.1341	+71	+ 1
β Capricorni	3.4	3.07	17.8	15 5.4	19 19.2	- 9 12.7	+0.6608	0.5448	0.1343	+72	+ 1
B. A. C. 7087	6.2	+3.11	+18.8	-14 3.4	17 1 39.3	- 3 5.0	+0.4246	0.5444	+0.1423	+55	-12
ν Aquarii	4.6	3.23	21.2	11 46.0	18 41.3	-10 35.6	+0.5687	0.5439	0.1618	+68	- 4
14 Aquarii	6.9	3.23	22.2	9 37.3	21 56.4	- 7 26.8	-1.1794	0.5439	0.1652	-41	-90
B. A. C. 7408	6.9	3.26	22.4	9 44.5	18 0 39.9	- 4 48.5	-0.5959	0.5440	0.1679	0	-77
17 Aquarii	6.4	3.26	22.4	9 44.1	1 7.7	- 4 21.5	-0.5252	0.5440	0.1683	+ 4	-70
19 Aquarii	5.7	+3.28	+22.2	-10 9.8	2 12.8	- 3 18.5	+0.1123	0.5440	+0.1694	+39	-29

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m				°	°
ξ Aquarii	4.8	+3.32	+23.4	8 17.5	18 8 14.6	+ 2 31.7	-0.8273	0.5443	+0.1749	-13	-90
B. A. C. 7562	5.5	3.36	23.2	0 29.1	11 40.2	+ 5 50.7	+1.0355	0.5446	0.1779	+81	+25
ϵ^1 Capricorni	5.2	3.36	23.1	9 33.9	11 42.5	+ 5 52.9	+1.0300	0.5446	0.1780	+81	+30
30 Aquarii	5.6	3.43	24.6	6 59.6	20 27.8	- 9 38.7	+0.0115	0.5456	0.1848	+35	-35
B. A. C. 7690	7.0	3.44	25.0	5 49.8	21 48.5	- 8 20.6	-0.0580	0.5458	0.1858	-20	-90
B. A. C. 7704	7.3	+3.44	+24.8	6 18.3	22 34.7	- 7 35.9	-0.3165	0.5460	+0.1863	+17	-55
B. A. C. 7744	6.3	3.46	25.3	5 12.1	19 0 59.3	- 5 16.0	-1.0185	0.5463	0.1880	-24	-90
B. A. C. 7752	6.7	3.47	25.4	4 56.1	1 31.7	- 4 44.6	-1.1950	0.5464	0.1883	-40	-90
44 Aquarii	5.9	3.48	25.2	5 52.5	3 3.7	- 3 15.6	+0.0755	0.5467	0.1892	+39	-32
51 Aquarii	5.8	3.52	25.4	5 19.9	6 23.3	- 0 2.6	+0.1423	0.5473	0.1913	+43	-28
κ Aquarii	5.5	+3.58	+25.7	4 43.9	12 50.8	+ 6 12.4	+0.7648	0.5489	+0.1948	+77	+ 7
Lalande 44337	6.3	3.60	26.0	4 3.6	14 16.6	+ 7 35.3	+0.3482	0.5490	0.1954	+56	-17
κ Piscium	5.0	3.84	27.4	0 43.3	20 11 45.0	+ 4 21.1	-0.2902	0.5564	0.2017	+20	-53
9 Piscium	6.6	3.84	27.4	0 35.2	11 53.9	+ 4 29.8	-0.1223	0.5565	0.2017	+29	-43
15 Piscium	6.6	3.87	27.4	0 46.4	15 39.9	+ 8 8.2	+0.4463	0.5581	0.2020	+64	-11
16 Piscium	5.6	+3.88	+27.6	+ 1 33.6	16 5.2	+ 8 32.6	-0.2697	0.5582	+0.2020	+21	-52
λ Piscium	4.7	3.91	27.2	1 14.6	18 39.7	+11 1.9	+0.5735	0.5594	0.2020	+74	- 4
19 Piscium	5.2	3.95	27.7	2 56.7	20 37.6	-11 4.2	-0.7589	0.5604	0.2019	- 7	-79
22 Piscium	5.9	3.97	27.4	2 23.3	23 8.3	- 8 38.8	+0.3138	0.5616	0.2017	+54	-18
25 Piscium	6.3	3.98	27.1	1 32.8	23 38.5	- 8 9.5	+1.2656	0.5619	0.2016	+90	+47
51 Piscium	5.7	+4.23	+27.0	+ 6 25.0	21 17 3.3	+ 8 38.8	-0.1712	0.5713	+0.1964	+26	-44
60 Piscium	6.2	4.30	26.2	6 12.5	23 32.8	- 9 5.6	+1.2981	0.5751	0.1927	+90	+54
62 Piscium	6.0	4.32	26.3	6 46.0	23 55.5	- 8 43.8	+0.8130	0.5754	0.1924	+90	+11
δ Piscium	4.6	4.32	26.3	7 3.2	22 0 5.6	- 8 34.0	+0.5588	0.5755	0.1923	+73	- 4
100 Piscium	6.8	4.64	24.4	12 3.5	19 28.9	+10 6.4	-0.8339	0.5881	0.1752	-11	-78
π Piscium	5.6	+4.64	+24.1	+11 38.5	20 24.6	+11 0.1	-0.2597	0.5889	+0.1742	+21	-47
B. A. C. 490	7.5	4.65	23.9	11 34.8	20 38.5	+11 13.4	-0.1577	0.5889	0.1739	+27	-41
19 Arietis	6.2	4.89	21.5	14 49.3	23 10 54.8	+ 0 56.8	-0.9964	0.5981	0.1550	-23	-75
29 Arietis	6.3	4.96	19.6	14 36.1	18 45.5	+ 8 29.0	+0.3885	0.6029	0.1425	+60	- 7
0 Arietis	5.8	5.01	18.2	14 53.9	23 17.9	-11 9.5	+0.7271	0.6054	0.1346	+90	+13
ρ^1 Arietis	7.0	+5.13	+17.4	+17 20.2	24 3 17.1	- 7 20.0	-1.1388	0.6079	+0.1273	-37	-73
ρ^2 Arietis	6.8	5.15	16.8	17 37.0	5 26.5	- 5 15.8	-1.1417	0.6090	0.1232	-37	-73
53 Arietis	6.3	5.17	16.1	17 30.2	8 5.5	- 2 43.3	-0.7102	0.6103	0.1178	- 5	-72
14 Tauri	6.4	5.34	11.6	19 21.3	21 50.5	+10 27.8	-1.0932	0.6161	0.0899	-33	-71
B. A. C. 1242	6.6	5.33	9.5	19 55.5	25 4 19.7	- 7 19.0	-1.1200	0.6180	0.0742	-36	-70
ω^1 Tauri	5.8	+5.41	+ 8.5	+19 21.0	7 20.3	- 4 26.1	-0.3456	0.6186	+0.0672	+16	-41
ω^2 Tauri	4.6	5.42	7.5	20 20.2	10 20.7	- 1 33.3	-1.1196	0.6192	0.0600	-36	-70
W. B. 4 ^h 650	5.8	5.43	4.7	20 29.2	18 8.7	+ 5 55.1	-0.8726	0.6200	0.0412	-16	-70
B. A. C. 1468	6.3	5.35	3.6	18 33.4	21 8.9	+ 8 47.7	+1.1298	0.6200	0.0338	+90	+52
i Tauri	5.1	5.36	3.0	18 40.3	23 2.2	+10 36.2	+1.0766	0.6199	0.0291	+90	+47
l Tauri	5.4	+5.47	+ 0.7	+20 17.3	26 5 7.6	- 7 33.8	-0.3756	0.6194	+0.0141	+16	-37
107 Tauri	6.5	5.40	+ 0.7	19 43.9	5 31.0	- 7 11.4	+0.1758	0.6193	+0.0131	+46	- 7
B. A. C. 1795	7.5	5.32	- 3.7	18 56.2	18 6.2	+ 4 52.2	+0.9294	0.6162	-0.0178	+90	+37
127 Tauri	6.3	5.31	3.7	18 55.9	18 15.6	+ 5 1.2	+0.9333	0.6161	0.0182	+90	+37
B. A. C. 1867	7.2	5.35	5.3	20 16.4	22 10.0	+ 8 45.9	-0.4802	0.6147	0.0277	+ 8	-47
χ^1 Orionis	4.6	+5.33	- 5.4	+20 15.4	22 34.6	+ 9 9.5	-0.4746	0.6145	-0.0285	+ 9	-47
χ^2 Orionis	5.8	5.32	5.3	19 43.7	22 47.4	+ 9 21.7	+0.0399	0.6144	0.0290	+38	-16
χ^3 Orionis	5.1	5.29	6.4	19 41.4	27 2 0.9	+12 27.3	-0.0281	0.6130	0.0366	+34	-20
χ^4 Orionis	4.8	5.31	6.5	20 8.3	2 11.0	-11 22.9	-0.4779	0.6130	0.0370	+ 9	-48
68 Orionis	5.6	5.28	7.5	19 48.6	5 16.5	- 8 25.1	-0.2797	0.6115	0.0442	-20	-35
71 Orionis	5.1	+5.24	- 7.8	+19 11.3	6 22.1	- 7 22.2	+0.2883	0.6109	-0.0468	+54	- 3
ν Geminorum	4.0	5.24	9.7	20 16.3	11 46.2	- 2 11.3	-1.0747	0.6079	0.0590	-32	-70
22 Geminorum	7.2	5.20	10.0	19 30.2	13 59.0	- 0 3.8	-0.4471	0.6067	0.0639	+11	-48
26 Geminorum	5.0	5.02	10.9	17 44.3	17 1.6	+ 2 51.5	+1.1058	0.6048	0.0704	+90	+46
λ Geminorum	3.6	4.92	14.6	16 42.9	28 7 11.1	- 7 32.5	+0.9356	0.5949	0.0989	+90	+30
W. B. 7 ^h 685	6.2	+4.87	-16.0	+17 17.7	12 44.0	- 2 12.4	-0.2238	0.5907	-0.1091	+23	-38

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$								
		s	"	°	d h m	h m				°	°
67 Geminorum	7.5	+4.82	-15.9	+15 50.8	28 13 24.8	- 1 33.2	+1.1616	0.5903	-0.1103	+90	+47
68 Geminorum	5.0	4.83	16.0	16 2.1	13 29.5	- 1 28.7	+0.9642	0.5902	0.1105	+90	+30
<i>f</i> Geminorum	5.2	4.85	17.0	17 53.7	15 52.2	+ 0 48.6	-1.1831	0.5883	0.1146	-44	-72
1 Cancri	5.9	4.70	18.2	16 3.0	23 10.9	+ 7 50.9	+0.1989	0.5825	0.1265	+25	-38
5 Cancri	6.3	4.70	18.9	16 43.4	29 1 4.2	+ 9 40.0	-1.1255	0.5810	0.1294	-37	-73
27 Cancri	5.6	+4.46	-19.8	+12 58.6	11 55.6	- 3 52.2	+1.2093	0.5725	-0.1447	+90	+48
29 Cancri	5.9	4.49	20.4	14 32.0	12 43.6	- 3 5.9	-0.5027	0.5717	0.1457	+ 8	-60
A ¹ Cancri	5.6	4.37	21.0	13 1.8	19 9.2	+ 3 6.0	+0.0783	0.5667	0.1535	+40	-26
A ² Cancri	5.8	4.33	21.1	12 28.1	20 49.1	+ 4 42.5	+0.4008	0.5654	0.1554	+61	- 9
60 Cancri	5.7	4.27	21.5	11 59.9	30 0 50.8	+ 8 35.9	+0.2502	0.5622	0.1597	+50	-17
<i>a</i> Cancri	4.3	+4.27	-21.8	+12 14.1	1 59.8	+ 9 42.5	-0.1777	0.5614	-0.1609	+26	-41
κ Cancri	5.0	4.18	21.9	11 3.6	6 12.8	-10 13.1	+0.3520	0.5582	0.1650	+57	-12
ω Leonis	5.6	4.04	22.4	9 28.9	15 47.3	- 0 57.8	+0.3784	0.5514	0.1731	+59	-12
3 Leonis	6.0	4.03	22.1	8 36.9	15 48.9	- 0 56.2	+1.2800	0.5512	0.1731	+90	+54
<i>h</i> Leonis	5.4	+4.03	-22.8	+10 8.8	17 25.5	+ 0 37.2	-0.6003	0.5503	-0.1743	+ 3	-72

DECEMBER.

14 Sextantis	6.6	+3.77	-22.6	+ 6 5.3	1 10 6.9	- 7 13.6	+0.6708	0.5391	-0.1836	+85	+ 2
16 Sextantis	6.9	+3.77	-22.9	+ 6 39.0	11 18.3	- 6 4.5	-0.1409	0.5384	-0.1842	+28	-43
19 Sextantis	6.0	3.73	22.4	5 5.9	13 3.5	+ 4 22.7	+1.1788	0.5384	0.1852	+90	+38
34 Sextantis	6.6	3.65	22.6	4 5.6	2 3 51.5	+ 9 58.0	-0.5259	0.5312	0.1894	+ 7	-69
36 Sextantis	6.6	3.64	22.2	3 0.2	5 8.2	+11 12.3	+0.3988	0.5309	0.1897	+60	-14
55 Leonis	6.0	3.49	21.7	1 15.5	10 28.0	- 7 37.5	+1.2574	0.5288	0.1903	+90	+46
ρ^3 Leonis	6.2	+3.43	-21.4	+ 0 31.6	14 29.7	- 3 43.0	+1.2798	0.5275	-0.1908	+90	+49
ρ^0 Leonis	5.5	3.38	21.4	+ 0 27.8	19 41.0	+ 1 18.9	+0.3612	0.5258	0.1906	+58	-16
<i>v</i> Leonis	4.5	3.26	20.9	- 0 17.0	3 7 38.5	-11 4.8	-1.1069	0.5230	0.1893	-30	-90
χ Virginis	4.7	3.04	16.8	7 27.3	4 16 9.5	- 3 30.6	+0.7327	0.5209	0.1773	+82	+ 5
λ Virginis	7.0	3.02	16.9	6 57.6	17 34.5	- 2 8.1	-0.0621	0.5210	0.1764	+31	-39
ψ Virginis	5.0	+2.99	-15.7	- 9 0.4	5 0 2.7	+ 4 8.7	+1.0606	0.5214	-0.1726	+81	+26
γ Virginis	5.2	2.96	14.7	10 12.9	7 5.9	+10 59.6	+1.1955	0.5223	0.1678	+80	+40
B. A. C. 4394	5.9	2.94	15.3	8 27.5	7 26.9	+11 19.9	-0.8027	0.5223	0.1675	-11	-90
50 Virginis	6.3	2.95	14.8	9 48.3	8 4.2	+11 56.1	+0.5805	0.5223	0.1671	+71	- 4
56 Virginis	7.0	2.93	14.6	9 51.0	10 40.1	- 9 32.5	+0.1979	0.5228	0.1651	+44	-25
58 Virginis	7.0	+2.92	-14.3	-10 1.7	12 4.7	- 8 10.4	+0.1640	0.5230	-0.1640	+42	-27
62 Virginis	7.0	2.92	13.9	10 47.3	13 34.1	- 6 43.6	+0.7599	0.5233	0.1629	+73	+ 7
<i>a</i> Virginis	1.2	2.90	13.8	10 38.9	16 5.0	- 4 17.2	+0.1988	0.5237	0.1609	+44	-25
86 Virginis	6.0	2.86	12.3	11 56.0	6 2 47.0	+ 6 5.9	-0.0504	0.5259	0.1515	+28	-39
5 Libræ	6.6	2.77	7.8	15 2.7	7 9 11.8	+11 35.9	-0.7260	0.5343	0.1183	-13	-90
<i>a</i> ¹ Libræ	5.3	+2.76	- 7.4	-15 35.3	11 32.9	-10 7.3	-0.3969	0.5350	-0.1153	+ 5	-61
<i>a</i> ² Libræ	3.0	2.76	7.4	15 38.0	11 38.7	-10 1.4	-0.3589	0.5350	0.1150	+ 7	-59
γ ¹ Libræ	5.4	2.74	6.2	15 52.5	19 27.2	- 2 27.1	-0.9496	0.5373	0.1049	-29	-90
γ ² Libræ	6.9	2.74	6.1	16 6.2	19 32.8	- 2 22.2	-0.7043	0.5374	0.1048	-14	-90
26 Libræ	6.5	2.76	5.4	17 24.0	23 20.8	+ 1 18.7	+0.3489	0.5385	0.0996	+45	-16
28 Libræ	6.0	+2.76	- 5.1	-17 48.1	8 2 27.1	+ 4 19.2	+0.4916	0.5395	-0.0952	+55	- 8
ζ^3 Libræ	7.0	2.73	- 4.3	17 6.0	6 43.0	+ 8 27.1	-0.6803	0.5408	-0.0891	-14	-90
NEW MOON.											
Lalande 35497	6.4	+2.76	+11.7	-19 23.1	12 11 48.0	+10 15.5	+1.2268	0.5516	+0.0795	+71	+49
ρ^1 Sagittarii	3.9	+2.76	+13.0	-18 1.8	20 36.6	- 5 13.1	+0.5072	0.5504	+0.0935	+55	- 8
ρ^2 Sagittarii	6.1	2.77	12.9	18 29.3	20 40.7	- 5 9.2	+1.0129	0.5503	0.0936	+72	+25
ϵ^1 Sagittarii	5.6	2.77	14.4	16 31.0	13 5 39.5	+ 3 32.0	-0.2339	0.5490	0.1072	+14	-50
ϵ^2 Sagittarii	5.0	2.77	14.5	16 21.1	6 30.9	+ 4 21.8	-0.3198	0.5489	0.1084	+ 9	-56
B. A. C. 6746	5.5	2.77	14.5	15 41.8	7 1.0	+ 4 51.0	-0.9784	0.5488	0.1092	-31	-90
<i>g</i> Sagittarii	5.0	+2.79	+15.5	-15 45.0	13 52.3	+11 29.0	-0.1364	0.5478	+0.1190	+19	-44

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

DECEMBER.

THE STAR'S				AT CONJUNCTION IN R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m					
B. A. C. 6992	6.2	+2.83	+16.9	-15 5.5	14 0 47.6	- 1 56.8	+0.5320	0.5460	+0.1337	+62	- 6
β Capricorni	3.4	2.83	16.9	15 5.4	0 54.4	- 1 50.2	+0.5439	0.5460	0.1338	+63	- 6
B. A. C. 7087	6.2	2.85	17.8	14 3.4	7 15.0	+ 4 18.2	+0.3021	0.5450	0.1417	+47	-19
ν Aquarii	4.6	2.94	19.9	11 46.0	15 0 22.4	- 3 7.1	+0.4358	0.5428	0.1609	+58	-12
B. A. C. 7408	6.9	2.96	20.9	9 44.6	6 24.2	+ 2 43.2	+0.7408	0.5422	0.1668	- 9	-90
17 Aquarii	6.4	+2.96	+20.9	- 9 44.1	6 52.2	+ 3 10.3	-0.6702	0.5422	+0.1672	- 4	-86
19 Aquarii	5.7	2.97	20.7	10 9.9	7 58.1	+ 4 14.1	-0.0283	0.5421	0.1682	+31	-37
ξ Aquarii	4.8	3.01	21.7	8 17.5	14 4.2	+10 8.6	-0.9793	0.5417	0.1736	-23	-90
B. A. C. 7562	5.5	3.04	21.6	9 29.2	17 32.6	-10 29.5	+0.8984	0.5415	0.1764	+81	+15
ϵ Capricorni	5.2	3.04	21.5	9 33.9	17 35.0	-10 27.2	+0.9533	0.5415	0.1764	+81	+19
ϵ Capricorni	6.2	+3.05	+21.5	- 9 43.6	18 11.7	- 9 51.7	+1.2697	0.5415	+0.1770	+80	+49
30 Aquarii	5.6	3.10	22.8	6 59.7	16 2 28.8	- 1 50.3	-0.1382	0.5413	0.1830	-27	-44
B. A. C. 7690	7.0	3.11	23.2	5 49.8	3 50.9	- 0 30.8	-1.1219	0.5415	0.1839	+33	-90
B. A. C. 7704	7.3	3.11	23.1	6 18.4	4 37.9	+ 0 14.8	-0.4716	0.5415	0.1844	+ 9	-66
B. A. C. 7744	6.3	3.13	23.5	5 12.1	7 5.4	+ 2 37.6	-1.1818	0.5416	0.1860	-38	-90
44 Aquarii	5.9	+3.15	+23.4	- 5 52.5	9 12.3	+ 4 40.5	-0.0768	0.5417	+0.1872	+30	-40
51 Aquarii	5.8	3.19	23.6	5 19.9	12 36.1	+ 7 57.8	-0.0084	0.5420	0.1891	+34	-36
κ Aquarii	5.5	3.24	23.8	4 43.9	19 12.4	- 9 38.4	+0.6187	0.5426	0.1923	+77	- 2
Lalande 44337	6.3	3.27	24.1	- 4 3.7	20 40.5	- 8 13.2	+0.1972	0.5428	0.1930	+47	-25
κ Piscium	5.0	3.52	25.4	+ 0 43.2	17 18 46.1	-10 50.2	-0.4501	0.5474	0.1986	+11	-64
9 Piscium	6.6	+3.52	+25.4	+ 0 35.1	18 55.1	-10 41.5	-0.2803	0.5475	+0.1986	+52	-20
15 Piscium	6.6	3.55	25.6	0 46.4	22 48.1	- 6 55.5	+0.2986	0.5487	0.1987	+19	-53
16 Piscium	5.6	3.56	25.8	1 33.6	23 14.8	- 6 30.2	-0.4290	0.5489	0.1987	+12	-62
λ Piscium	4.7	3.59	25.3	1 14.5	18 1 54.5	- 3 55.7	+0.4286	0.5497	0.1987	+62	-12
19 Piscium	5.2	3.63	25.9	2 56.7	3 56.6	- 1 57.6	-0.9251	0.5505	0.1985	-17	-87
22 Piscium	5.9	+3.67	+25.6	+ 2 23.2	6 32.7	+ 0 33.4	+0.1668	0.5514	+0.1983	+45	-25
25 Piscium	6.3	3.67	25.2	1 32.8	7 3.9	+ 1 3.6	+1.1354	0.5516	0.1982	+90	+33
51 Piscium	5.7	3.96	25.5	6 24.9	19 1 8.0	- 5 28.7	-0.3179	0.5600	0.1929	+18	-53
60 Piscium	6.2	4.05	24.6	6 12.5	7 53.0	+ 1 2.4	+1.1832	0.5633	0.1893	+90	+39
62 Piscium	6.0	4.07	24.8	6 46.0	8 16.6	+ 1 25.2	+0.6895	0.5636	0.1892	+88	+ 4
δ Piscium	4.6	+4.07	+24.8	+ 7 3.2	8 27.1	+ 1 35.4	+0.4309	0.5637	+0.1888	+63	-11
ϵ Piscium	4.5	4.16	24.1	7 21.9	14 47.1	+ 7 42.1	+1.2966	0.5673	0.1847	+90	+55
100 Piscium	6.8	4.45	23.4	12 3.5	20 4 36.9	- 2 57.6	-0.9687	0.5760	0.1725	-20	-78
π Piscium	5.6	4.46	23.1	11 38.5	5 34.8	- 2 1.8	-0.3834	0.5766	0.1715	+15	-55
B. A. C. 490	7.5	4.47	23.0	11 34.8	5 49.2	- 1 47.9	-0.2796	0.5768	0.1712	+20	-48
19 Arietis	6.2	+4.77	+20.9	+14 49.3	20 38.3	-11 31.7	-1.1148	0.5853	+0.1531	-33	-75
29 Arietis	6.3	4.89	18.9	14 36.1	21 4 46.0	- 3 42.4	+0.3038	0.5920	0.1411	+54	-12
α Arietis	5.8	4.96	17.7	14 53.9	9 27.7	+ 0 48.5	+0.6527	0.5951	0.1335	+83	+ 9
ρ^1 Arietis	7.0	5.10	17.2	17 20.2	13 34.8	+ 4 45.9	-1.2342	0.5976	0.1264	-48	-73
50 Arietis	6.8	5.13	16.6	17 37.0	15 48.2	+ 6 54.1	-1.2341	0.5990	0.1225	-48	-73
53 Arietis	6.3	+5.17	+15.8	+17 30.1	18 32.1	+ 9 31.5	-0.7924	0.6007	+0.1175	-10	-73
14 Tauri	6.4	5.43	11.7	19 21.3	22 8 39.6	- 0 54.9	-1.1568	0.6083	0.0893	-40	-71
B. A. C. 1242	6.6	5.52	9.5	19 55.5	15 17.6	+ 5 27.0	-1.1720	0.6113	0.0746	-42	-70
ω^1 Tauri	5.8	5.53	8.3	19 21.0	18 21.7	+ 8 23.5	-0.3852	0.6125	0.0680	+14	-44
ω^2 Tauri	4.6	5.59	7.4	20 20.2	21 25.6	+11 19.8	-1.1603	0.6135	0.0611	-41	-70
W. B. 4 ^b 650	5.8	+5.67	+ 4.6	+20 29.2	23 5 20.9	- 5 4.4	-0.8969	0.6157	+0.0425	-18	-70
B. A. C. 1468	6.3	5.61	3.1	18 33.4	8 23.5	- 2 9.4	+1.1231	0.6163	0.0352	+90	+51
ϵ Tauri	5.1	5.63	2.5	18 40.3	10 18.0	- 0 19.6	+1.0722	0.6166	0.0310	+90	+46
ζ Tauri	5.4	5.73	0.4	20 17.3	16 26.7	+ 5 33.7	-0.3772	0.6172	0.0157	+14	-39
107 Tauri	6.5	5.78	+ 0.2	19 43.9	16 50.4	+ 5 56.4	+0.1772	0.6173	+0.0148	+46	- 7
ζ Tauri	3.0	+5.80	- 3.8	+21 4.9	24 3 37.3	- 7 43.7	-1.1364	0.6168	-0.0116	-39	-69
B. A. C. 1796	7.5	5.72	4.6	18 56.2	5 28.4	- 5 57.3	+0.9524	0.6166	0.0161	+90	+39
127 Tauri	6.3	5.72	4.6	18 55.9	5 37.7	- 5 48.4	+0.9565	0.6165	0.0165	+90	+39
B. A. C. 1867	7.2	5.78	6.0	20 16.4	9 32.0	- 2 3.7	-0.4543	0.6158	0.0259	+10	-45
χ^1 Orionis	4.6	5.76	6.2	20 15.4	9 56.5	- 1 40.3	-0.4448	0.6157	0.0269	+10	-45
χ^2 Orionis	5.8	+5.75	- 6.2	+19 43.7	10 9.3	- 1 28.0	+0.0700	0.6157	-0.0274	+40	-14

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

DECEMBER.

THE STAR'S					AT CONJUNCTION IN R. A.							Limiting Parallels.	
Name.	Mag.	Red'ns from 1901.0.		Apparent Declination.	Washington Mean Time.	Hour Angle. <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N.	S.		
		$\Delta\alpha$	$\Delta\delta$										
		s	"		d h m	h m						°	°
χ^3 Orionis	5.1	+5.75	-7.4	+19 41.4	24 13 22.1	+ 1 36.8	+0.0077	0.6149	-0.0351	+36	-18		
χ^4 Orionis	4.8	5.77	7.4	20 8.3	13 32.3	+ 1 46.6	-0.4415	0.6148	0.0355	+11	-45		
68 Orionis	5.6	5.76	8.6	19 48.6	16 36.8	+ 4 43.8	-0.2374	0.6139	0.0427	+22	-33		
71 Orionis	5.1	5.72	8.9	19 11.2	17 42.0	+ 5 46.0	+0.3312	0.6134	0.0442	+57	- 1		
ν Geminorum	4.0	5.76	10.8	20 16.3	23 3.5	+10 54.3	-1.0189	0.6115	0.0576	-26	-70		
22 Geminorum	7.2	+5.73	-11.3	+19 30.1	25 1 15.0	-10 59.5	-0.3879	0.6107	-0.0626	+14	-44		
26 Geminorum	5.0	5.64	12.5	17 44.3	4 15.5	- 8 6.3	+1.1627	0.6093	0.0693	+90	+52		
λ Geminorum	3.6	5.54	16.9	16 42.9	18 12.0	+ 5 16.7	+1.0148	0.6016	0.0985	+90	+36		
W. B. 7 ^b 685	6.2	5.53	18.5	17 17.6	23 38.4	+10 30.3	-0.1272	0.5981	0.1089	+29	-32		
68 Geminorum	5.0	5.46	18.6	16 2.0	26 0 23.1	+11 13.2	+1.0520	0.5975	0.1103	+90	+37		
<i>f</i> Geminorum	5.2	+5.52	-19.4	+17 53.7	2 42.7	-10 32.7	-1.0732	0.5960	-0.1145	-30	-72		
1 Cancri	5.9	5.40	21.1	16 2.9	9 51.2	- 3 40.6	-0.0852	0.5910	0.1269	+31	-31		
5 Cancri	6.3	5.41	21.6	16 43.3	11 41.7	- 1 54.3	-0.9996	0.5896	0.1299	-24	-73		
29 Cancri	5.9	5.24	23.9	14 31.9	23 2.5	+ 9 1.2	-0.3642	0.5812	0.1468	+16	-51		
A ¹ Cancri	5.6	5.14	24.8	13 1.7	27 5 17.0	- 8 58.0	+0.2195	0.5764	0.1549	+49	-18		
A ² Cancri	5.8	+5.10	-25.1	+12 28.0	6 53.9	- 7 27.6	+0.5407	0.5752	-0.1568	+72	- 1		
60 Cancri	5.7	5.06	25.6	11 59.8	10 48.3	- 3 38.5	+0.3986	0.5722	0.1613	+61	- 9		
α Cancri	4.3	5.06	25.9	12 14.0	11 55.2	- 2 34.0	-0.0233	0.5710	0.1624	+34	-32		
κ Cancri	5.0	4.99	26.2	11 3.6	16 0.4	+ 1 22.5	+0.5053	0.5683	0.1668	+69	- 4		
ω Leonis	5.6	4.86	27.1	9 28.8	28 1 17.0	+10 19.9	+0.5431	0.5615	0.1752	+74	- 2		
β Leonis	5.4	+4.85	-27.5	+10 8.7	2 52.0	+11 51.7	-0.4201	0.5605	-0.1764	+13	-58		
14 Sextantis	6.6	4.63	27.9	6 5.2	19 1.4	+ 3 28.8	+0.8536	0.5497	0.1864	+90	+11		
16 Sextantis	6.9	4.62	28.2	6 38.9	20 10.7	+ 4 35.8	+0.0523	0.5490	0.1870	+39	-31		
34 Sextantis	6.6	4.42	28.1	4 5.5	29 12 13.6	- 3 52.1	-0.3130	0.5400	0.1919	+19	-54		
36 Sextantis	6.6	4.41	27.9	3 0.1	13 28.1	- 2 40.0	+0.6004	0.5394	0.1921	+77	- 3		
ρ^6 Leonis	5.5	+4.26	-27.2	+ 0 27.7	30 3 36.9	+11 2.6	+0.5720	0.5331	-0.1929	+74	- 4		
ν Leonis	4.5	+4.14	-26.5	- 0 17.1	15 16.8	- 1 38.8	-0.8744	0.5291	-0.1914	-13	-90		

OCCULTATIONS VISIBLE AT WASHINGTON DURING THE YEAR 1901.

Date.		THE STAR'S		IMMERSION.				EMERSION.				Duration of Oc- cultation.
				Washington,		Angle from		Washington,		Angle from		
Name.		Mag.	Sidereal Time.	Mean Time.	North Point.	Vertex.	Sidereal Time.	Mean Time.	North Point.	Vertex.		
			h m	h m	°	°	h m	h m	°	°	h m	
Jan.	1	ω^1 Tauri	4.6	5 40	10 50	120	100	6 46	12 1	235	183	1 6
	3	22 Geminorum *	7.2	14 0	19 0	104	49	14 47	19 53	283	228	0 47
	4	W B 7 ^h 685 *	6.2	14 28	19 31	91	36	15 13	20 17	299	245	0 46
	6	α Cancri	4.3	3 25	8 21	88	141	4 27	9 23	302	354	1 2
	6	κ Cancri	5.0	9 50	14 51	151	131	11 6	16 1	266	227	1 10
	15	B. A. C. 5395 *	7.0	9 4	13 24	122	171	9 55	14 15	262	314	0 51
	17	14 Sagittarii	5.9	14 17	18 28	143	184	15 2	19 13	219	255	0 45
	22	44 Aquarii	5.9	2 37	6 30	11	324	3 13	7 6	298	249	0 36
	27	ρ^1 Arietis	7.0	3 21	6 54	61	45	4 40	8 14	268	226	1 19
	27	ρ^3 Arietis	5.5	4 57	8 30	359	312	5 12	8 46	336	287	0 15
	27	50 Arietis	6.8	6 35	10 8	68	14	7 40	11 13	276	221	1 5
	27	53 Arietis	6.3	9 40	13 19	135	81	10 20	13 52	215	161	0 34
	28	B. A. C. 1242	6.6	7 37	11 6	71	16	8 40	12 9	287	231	1 3
	30	χ^4 Orionis	4.8	10 33	13 58	157	101	11 8	14 33	227	172	0 35
Feb.	1	1 Cancri	5.9	11 24	14 37	108	56	12 30	15 43	294	240	1 6
	2	A ¹ Cancri	5.6	8 1	11 10	180	196	8 36	11 45	229	229	0 35
	2	60 Cancri	5.7	15 16	18 24	87	35	16 4	19 12	312	259	0 48
	8	ι Virginis	5.5	9 30	12 16	127	170	10 45	13 30	288	321	1 14
	13	58 Ophiuchi	5.0	11 55	14 20	87	139	12 57	15 22	285	332	1 2
	15	B. A. C. 6710 *	6.0	13 13	15 30	95	146	14 10	16 27	254	304	0 57
	22	100 Piscium	6.8	2 3	3 54	354	346	2 29	4 20	316	301	0 26
	26	B. A. C. 1867 *	7.2	13 12	14 46	61	10	13 51	15 25	315	272	0 39
	27	22 Geminorum	7.2	5 17	6 49	146	181	6 16	7 48	230	238	0 59
	28	W. B. 7 ^h 685	6.2	6 50	8 17	157	176	7 46	9 13	236	226	0 56
Mar.	2	ω Leonis *	5.6	15 58	17 16	49	357	16 24	17 42	351	299	0 26
	3	14 Sextantis	6.6	10 12	11 27	147	142	11 30	12 45	275	247	1 18
	4	36 Sextantis	6.6	4 33	5 45	87	138	5 20	6 32	311	3	0 47
	4	ρ^1 Leonis *	6.2	17 15	18 25	126	75	18 9	19 18	274	224	0 53
	7	δ Virginis	5.2	8 17	9 16	84	132	9 16	10 15	328	11	0 59
	10	B. A. C. 5109 †	5.4	9 23	10 10	112	165	10 23	11 11	281	329	1 0
	11	ω Ophiuchi	4.7	14 11	14 54	102	130	15 40	16 23	279	291	1 29
	13	μ Sagittarii *	4.0	11 54	12 30	119	171	12 48	13 23	246	296	0 53
	13	15 Sagittarii	5.6	12 47	13 22	28	78	13 14	13 49	337	25	0 27
	14	B. A. C. 6536 *	5.5	12 8	12 40	101	150	13 2	13 34	254	307	0 54
	14	δ Sagittarii	4.9	16 53	17 23	67	96	18 16	18 46	271	284	1 23
	29	κ Cancri	5.0	12 57	12 30	128	77	13 39	13 11	200	148	0 41
Apr.	8	B. A. C. 5758	6.6	14 11	13 3	99	133	15 37	14 29	276	294	1 26
	22	χ^3 Orionis	5.1	10 56	8 54	103	48	11 53	9 51	279	226	0 57
	25	A ¹ Cancri	5.6	7 0	4 47	79	114	8 13	6 0	327	338	1 13
	25	A ² Cancri	5.8	9 52	7 39	111	84	11 13	8 59	302	257	1 20
May	1	ι Virginis	5.5	11 21	8 44	172	199	12 11	9 34	244	261	0 50
	4	λ Libræ	5.0	11 16	8 28	91	137	12 25	9 36	302	340	1 8
	4	ω^1 Scorpil	4.1	20 18	17 28	86	42	21 25	18 35	270	220	1 7
	4	ω^3 Scorpil	4.6	20 50	17 59	140	93	21 29	18 39	217	166	0 39
	8	B. A. C. 6658	7.3	14 49	11 44	123	169	16 5	13 0	225	265	1 16
	24	14 Sextantis	6.6	10 12	6 5	87	83	11 24	7 17	233	207	1 12
	24	19 Sextantis	6.0	14 41	10 33	124	73	15 43	11 35	283	232	1 2
	25	55 Leonis	6.0	12 12	8 0	133	110	13 34	9 22	287	248	1 22
	25	ρ^2 Leonis *	6.2	17 14	13 1	89	38	18 6	13 53	310	260	0 52
	30	B. A. C. 4896	6.6	15 25	10 54	26	17	15 40	11 8	7	352	0 14

NOTE.—The angles of position are counted from the north point and vertex of the moon's limb, toward the east.

* Whole occultation below the horizon of Washington.

† Immersion below the horizon of Washington.

‡ Emersion below the horizon of Washington.

OCCULTATIONS VISIBLE AT WASHINGTON DURING THE YEAR 1901.

Date	THE STAR'S		IMMERSION				EMERSION.				Duration of Oc- cultation.
			Washington,		Angle from		Washington,		Angle from		
	Name.	Mag.	Sidereal Time.	Mean Time	North Point	Vertex.	Sidereal Time.	Mean Time.	North Point.	Vertex.	
			h m	h m	°	°	h m	h m	°	°	h m
June 1	ω Ophiuchi	4.7	14 43	10 4	174	196	15 9	10 29	207	225	0 25
3	15 Sagittarii	† 5.6	12 46	7 58	94	145	13 50	9 3	271	315	1 4
3	17 Sagittarii	7.0	13 36	8 49	45	91	14 24	9 37	319	0	0 48
3	21 Sagittarii	4.9	19 0	14 12	87	71	20 26	15 37	248	216	1 25
4	δ Sagittarii	4.9	18 31	13 39	134	144	19 16	14 24	195	194	0 45
4	μ^2 Sagittarii	6.1	21 25	16 33	54	27	22 39	17 46	266	228	1 13
9	15 Piscium	6.6	17 45	12 33	70	121	18 44	13 32	246	296	0 59
27	B. A. C. 5109 *	5.4	21 12	14 49	113	61	22 7	15 44	251	201	0 55
29	B. A. C. 5758	6.6	14 38	8 8	107	137	16 4	9 34	266	279	1 26
July 1	Lalande 35497	6.4	20 59	14 20	76	50	22 16	15 37	249	211	1 17
12	107 Tauri	† 6.5	21 44	14 22	127	183	22 20	14 58	219	274	0 36
25	λ Libræ	5.0	14 52	6 40	90	103	16 24	8 12	294	286	1 32
29	B. A. C. 6658	7.3	16 6	7 39	88	126	17 26	8 58	254	278	1 19
Aug. 4	62 Piscium	* 6.0	17 17	8 25	110	161	17 56	9 4	211	262	0 39
4	δ Piscium	† 4.6	17 30	8 38	56	107	18 19	9 27	265	316	0 49
9	λ^2 Orionis	5.8	0 31	15 19	101	155	1 31	16 19	251	307	1 0
21	41 Libræ	5.7	19 24	9 25	50	8	20 17	10 18	315	268	0 53
21	κ Libræ	* 5.0	21 9	11 10	142	91	21 48	11 49	221	169	0 39
23	ξ Ophiuchi	4.5	18 54	8 47	70	49	20 16	10 9	278	243	1 22
24	15 Sagittarii	5.6	19 46	9 36	126	105	20 42	10 31	210	170	0 55
24	16 Sagittarii	6.2	19 52	9 41	44	24	21 1	10 50	292	258	1 9
24	17 Sagittarii	7.0	20 33	10 23	96	67	21 46	11 35	238	198	1 12
25	Lalande 35497	6.4	15 41	5 27	90	127	17 2	6 48	259	283	1 21
27	ν Aquarii *	4.6	3 13	16 50	56	4	4 4	17 40	265	216	0 50
28	B. A. C. 7562	5.5	16 26	6 0	49	98	17 23	6 57	277	323	0 57
28	ϵ^1 Capricorni	5.2	16 25	5 59	60	110	17 26	7 0	266	311	1 1
28	ϵ^2 Capricorni	6.2	17 5	6 39	128	175	17 42	7 16	195	240	0 37
30	λ Piscium	4.7	21 49	11 14	24	53	22 49	12 14	278	293	1 0
30	22 Piscium	5.9	3 48	17 13	56	9	4 49	18 13	259	208	1 0
31	δ Piscium	4.6	4 43	18 3	153	103	4 51	18 11	168	118	0 8
Sept. 2	29 Arietis	6.3	22 4	11 17	53	106	23 5	12 19	265	316	1 1
Oct. 3	71 Orionis	5.1	23 38	10 49	47	100	0 19	11 30	309	2	0 41
6	κ Cancri	5.0	3 48	14 47	115	168	4 53	15 52	274	326	1 5
8	36 Sextantis	6.6	4 10	15 1	122	173	5 7	15 58	276	327	0 57
19	ρ^1 Sagittarii	3.9	23 8	9 17	75	33	0 15	10 24	249	200	1 7
21	ν Aquarii	† 4.6	2 8	12 8	101	52	2 57	12 57	216	165	0 49
24	λ Piscium	4.7	22 12	8 1	41	65	23 24	9 13	261	265	1 12
24	22 Piscium	5.9	4 11	13 59	63	14	5 10	14 59	255	204	0 59
25	δ Piscium	4.6	4 17	14 2	117	69	5 2	14 46	203	152	0 44
Nov. 2	A ² Cancri *	5.8	1 45	10 58	88	140	2 39	11 52	294	345	0 54
2	60 Cancri	5.7	6 29	15 41	75	118	7 37	16 49	326	354	1 8
30	ω Leonis	5.6	7 10	14 32	109	149	8 32	15 54	299	318	1 22
Dec. 5	α Virginis	† 1.2	7 3	14 5	72	123	7 49	14 52	330	21	0 46
8	28 Libræ *	6.0	20 48	3 41	24	333	21 10	4 3	343	291	0 22
14	B. A. C. 7087 *	6.2	1 51	8 18	46	356	2 44	9 12	273	222	0 53
19	62 Piscium	6.0	2 26	8 34	139	107	2 47	8 55	172	136	0 21
19	δ Piscium	4.6	2 28	8 36	74	42	3 43	9 51	238	194	1 15
27	60 Cancri	5.7	3 24	9 0	111	59	4 25	10 1	274	221	1 1
27	κ Cancri	5.0	10 26	16 2	96	66	11 37	17 13	315	270	1 11
29	36 Sextantis	6.6	6 36	12 5	166	117	7 19	12 47	240	195	0 42

NOTE.—The angles of position are counted from the north point and vertex of the moon's limb, toward the east.

* Whole occultation below the horizon of Washington.

† Immersion below the horizon of Washington.

‡ Emersion below the horizon of Washington.

FOR WASHINGTON MEAN NOON.

Date.	k	i	θ	L	Date.	k	i	θ	L
Jan. 1	0.950	25.9	177.5	25.9	July 5	0.059	151.8	26.7	9.1
6	0.970	19.9	170.2	25.0	10	0.017	165.2	55.3	2.8
11	0.985	13.8	160.5	25.2	15	0.015	166.0	132.5	2.6
16	0.993	8.7	141.5	26.6	20	0.064	150.6	163.8	10.4
21	0.998	4.8	88.7	29.4	25	0.163	132.3	173.8	23.8
26	0.993	9.3	17.6	34.0	30	0.298	113.9	180.1	38.5
31	0.974	18.7	357.3	40.9	Aug. 4	0.467	93.8	185.8	53.2
Feb. 5	0.925	31.7	347.8	50.5	9	0.653	72.2	192.0	63.4
10	0.833	48.2	341.5	61.8	14	0.823	49.5	199.0	69.1
15	0.676	69.5	336.8	69.8	19	0.941	28.2	207.6	63.9
20	0.458	94.8	332.6	63.8	24	0.991	11.1	228.9	53.9
25	0.232	121.6	326.5	41.4	29	0.996	7.3	336.6	44.2
Mar. 2	0.067	150.1	315.4	14.5	Sept. 3	0.979	16.5	10.7	36.6
7	0.008	169.9	250.8	2.7	8	0.951	25.6	18.2	32.0
12	0.051	154.1	174.4	9.3	13	0.918	33.1	21.8	29.1
17	0.150	134.4	163.7	21.8	18	0.883	39.9	23.6	27.5
22	0.264	118.1	158.6	29.9	23	0.845	46.3	24.6	27.2
27	0.365	105.6	156.7	32.5	28	0.804	52.4	24.9	28.1
Apr. 1	0.455	95.1	154.6	32.9	Oct. 3	0.748	60.3	24.7	29.9
6	0.532	86.3	153.0	32.5	8	0.683	68.6	24.2	33.1
11	0.602	78.2	151.9	32.5	13	0.597	78.9	23.7	37.0
16	0.668	70.4	150.8	33.2	18	0.481	92.1	23.5	40.6
21	0.734	62.1	150.3	35.2	23	0.331	109.7	23.6	40.2
26	0.802	52.9	150.6	38.9	28	0.154	133.9	25.1	27.4
May 1	0.872	41.8	151.6	44.5	Nov. 2	0.019	164.2	35.9	4.1
6	0.946	27.0	152.1	52.7	7	0.033	158.8	204.6	8.6
11	0.990	11.6	165.8	61.0	12	0.225	123.3	206.6	42.6
16	0.995	7.9	335.4	67.3	17	0.403	94.2	206.1	59.5
21	0.938	29.1	342.3	66.4	22	0.655	72.0	204.5	55.6
26	0.833	48.2	347.5	59.6	27	0.783	55.5	202.3	46.4
31	0.713	64.9	352.6	51.2	Dec. 2	0.865	43.0	198.9	39.1
June 5	0.597	78.9	357.4	44.0	7	0.917	33.3	195.2	32.1
10	0.490	91.1	1.7	38.4	12	0.951	25.4	189.7	28.1
15	0.394	102.2	5.6	33.8	17	0.974	18.8	183.0	25.8
20	0.303	113.2	9.4	29.5	22	0.987	12.9	172.4	24.7
25	0.214	124.9	13.2	23.9	27	0.996	7.4	154.3	24.7
30	0.130	137.7	17.5	17.3	32	0.999	3.7	94.2	25.7

NOTATION.

k , the ratio of the illuminated portion of the apparent disk to the entire apparent disk considered as the superficies of a circle.

i , the angle between the sun and earth, as seen from the planet.

θ , the angle which the line joining the cusps, or extremities of the illuminated portion, makes with the meridian.

L , the brilliancy of the disk. The unit of L is the amount of light received by an eye from a circular disk with the same albedo as the planet, subtending an angular radius of one second of arc, situated at distance unity from the sun, and illuminated by the latter as the mean disk of the planet is illuminated.

FOR WASHINGTON MEAN NOON.

Date.	k	i	θ	L	Date.	k	i	θ	L
Jan. 1	0.875	41.3	190.0	62.2	July 5	0.955	24.5	7.9	51.6
6	0.882	40.0	187.0	60.6	10	0.947	26.6	10.1	52.4
11	0.891	38.3	184.1	59.1	15	0.939	28.6	12.2	53.2
16	0.901	36.5	181.1	57.8	20	0.930	30.7	14.2	54.1
21	0.910	34.8	178.0	56.6	25	0.921	32.7	15.9	55.1
26	0.918	33.1	174.9	55.5	30	0.911	34.8	17.3	56.1
31	0.926	31.5	171.8	54.5	Aug. 4	0.901	36.8	18.6	57.2
Feb. 5	0.934	29.8	168.8	53.5	9	0.890	38.9	19.8	58.4
10	0.941	28.2	165.9	52.5	14	0.878	40.9	20.7	59.7
15	0.947	26.6	163.2	51.6	19	0.866	43.0	21.4	61.1
20	0.953	25.0	160.6	50.8	24	0.854	45.0	21.9	62.6
25	0.959	23.4	158.1	50.2	29	0.841	47.1	22.2	64.3
Mar. 2	0.964	21.8	156.0	49.6	Sept. 3	0.828	49.1	22.2	66.1
7	0.969	20.2	154.2	49.0	8	0.815	51.1	22.0	68.1
12	0.974	18.5	152.5	48.4	13	0.801	53.1	21.5	70.3
17	0.978	16.9	150.9	48.0	18	0.786	55.2	20.9	72.5
22	0.982	15.2	149.5	47.6	23	0.772	57.2	20.0	75.0
27	0.986	13.6	148.2	47.3	28	0.757	59.2	18.9	77.8
Apr. 1	0.989	11.9	147.1	47.1	Oct. 3	0.741	61.2	17.5	80.8
6	0.992	10.1	146.0	46.9	8	0.725	63.3	15.9	84.0
11	0.994	8.4	145.1	46.7	13	0.708	65.4	14.1	87.6
16	0.996	6.6	143.6	46.6	18	0.691	67.5	12.1	91.5
21	0.998	4.9	141.2	46.5	23	0.674	69.6	10.0	95.8
26	0.999	3.2	136.8	46.5	28	0.656	71.8	7.7	100.5
May 1	1.000	1.7	115.7	46.6	Nov. 2	0.637	74.1	5.4	105.6
6	1.000	1.4	23.2	46.7	7	0.617	76.4	2.9	111.2
11	0.999	2.7	0.0	46.8	12	0.597	78.8	0.5	117.4
16	0.998	4.3	352.8	47.0	17	0.576	81.2	358.1	124.1
21	0.997	6.3	350.8	47.3	22	0.554	83.8	355.7	131.3
26	0.995	8.3	350.9	47.6	27	0.530	86.5	353.4	139.2
31	0.992	10.3	351.9	47.9	Dec. 2	0.505	89.5	351.3	147.6
June 5	0.989	12.3	353.8	48.3	7	0.478	92.5	349.2	156.6
10	0.985	14.3	356.0	48.8	12	0.451	95.6	347.3	166.5
15	0.980	16.3	358.3	49.2	17	0.423	98.9	345.5	177.2
20	0.975	18.4	0.6	49.7	22	0.392	102.5	343.9	187.6
25	0.969	20.4	3.0	50.3	27	0.359	106.5	342.4	197.3
30	0.962	22.5	5.5	50.9	32	0.323	110.8	340.9	205.7
July 5	0.955	24.5	7.9	51.6					

NOTATION.

k , the ratio of the illuminated portion of the apparent disk to the entire apparent disk considered as the superficies of a circle.

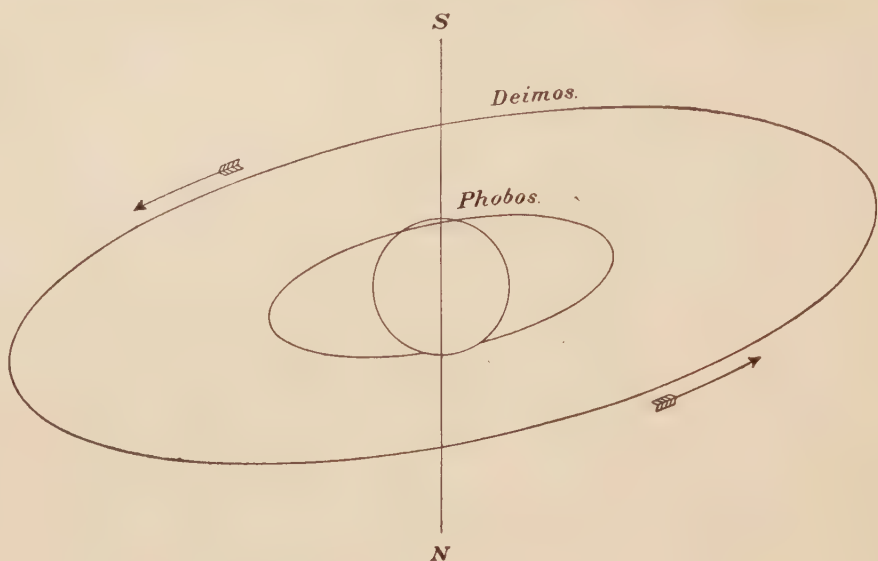
i , the angle between the sun and earth, as seen from the planet.

θ , the angle which the line joining the cusps, or extremities of the illuminated portion, makes with the meridian.

L , the brilliancy of the disk. The unit of L is the amount of light received by an eye from a circular disk with the same albedo as the planet, subtending an angular radius of one second of arc, situated at distance unity from the sun, and illuminated by the latter as the mean disk of the planet is illuminated.

WASHINGTON MEAN TIME.

Date.	<i>k</i>	<i>i</i>	θ	<i>L</i>	Date.	<i>k</i>
		0	0			
Jan. 1	0.924	32.0	200.8	9.9	May 31	0.890
11	0.939	27.8	199.9	12.0	June 15	0.891
21	0.960	23.0	198.2	14.3	30	0.894
31	0.978	16.9	195.1	16.8	July 15	0.900
Feb. 10	0.992	9.8	187.3	18.9	30	0.908
20	1.000	2.9	138.2	20.0	Aug. 14	0.916
Mar. 2	0.997	5.9	40.7	19.6	29	0.924
12	0.983	14.8	28.7	17.9	Sept. 13	0.933
22	0.964	21.5	24.2	15.6	28	0.942
Apr. 1	0.947	26.7	22.3	13.1	Oct. 13	0.950
11	0.930	30.8	21.2	11.0	28	0.958
21	0.915	33.8	20.8	9.2	Nov. 12	0.965
May 1	0.904	36.0	20.8	7.8	27	0.972
11	0.897	37.4	21.1	6.7	Dec. 12	0.978
21	0.892	38.2	21.5	5.8	27	0.984
31	0.890	38.6	22.0	5.1		



APPARENT ORBITS OF THE SATELLITES OF MARS DURING THE OPPOSITION OF 1901,
AS SEEN IN AN INVERTING TELESCOPE.

The circle represents the disk of the planet and is on the same scale as the orbits.

WASHINGTON MEAN TIME OF GREATEST ELONGATION, 1901.

Phobos.						Deimos.					
Feb.			Feb.			Feb.			Mar.		
d	h		d	h		d	h		d	h	
1	12.5	W.	18	6.2	E.	6	23.9	W.	1	23.4	W.
2	15.3	E.	19	9.0	W.	8	2.6	E.	3	20.8	E.
3	18.0	W.	20	11.7	E.	9	5.4	W.	5	18.2	W.
4	20.8	E.	21	14.5	W.	10	8.2	E.	7	15.6	E.
5	23.6	W.	22	17.3	E.	11	11.0	W.	9	13.0	W.
7	2.4	E.	23	20.1	W.	12	13.8	E.	11	10.4	E.
8	5.2	W.	24	22.8	E.	13	16.6	W.	13	7.8	W.
9	7.9	E.	26	1.6	W.	14	19.3	E.	15	5.2	E.
10	10.7	W.	27	4.4	E.	15	22.1	W.	17	2.6	W.
11	13.5	E.	28	7.2	W.	17	0.9	E.	18	23.9	E.
12	16.3	W.	Mar. 1	10.0	E.	18	3.7	W.	20	21.3	W.
13	19.1	E.	2	12.7	W.	19	6.5	E.	22	18.7	E.
14	21.8	W.	3	15.5	E.	20	9.2	W.	24	16.1	W.
16	0.6	E.	4	18.3	W.	21	12.0	E.	26	13.5	E.
17	3.4	W.	5	21.1	E.	22	14.8	W.	28	10.8	W.

Date.	Position Angle.	Distance.	Date.	Position Angle.	Distance.
Feb. 5	105.8	18.2	Feb. 5	105.8	45.7
25	101.3	19.1	25	101.3	47.9
Mar. 17	97.0	17.7	Mar. 17	97.0	44.4

For Phobos every seventh eastern and western elongation is given and for Deimos every third; the intermediate ones may be found by adding the periodic time of each satellite. Periodic time of Phobos, 7^h 39^m 13.85^s. Periodic time of Deimos, 30^h 17^m 54.86^s.

WASHINGTON MEAN TIME OF EVERY TWENTIETH GREATEST ELONGATION.

	d	h		d	h		d	h		d	h				
April	11	13.5	E.	July	10	17.3	E.	April	11	19.4	W.	July	10	11.3	W.
	21	12.6	E.		20	16.4	E.		21	18.6	W.		20	10.4	W.
May	1	11.7	E.	Aug.	30	15.5	E.	May	1	17.7	W.	Aug.	30	9.5	W.
	11	10.8	E.		9	14.6	E.		11	16.8	W.		9	8.6	W.
June	21	9.9	E.	Sept.	19	13.7	E.	June	21	15.9	W.	Sept.	19	7.7	W.
	31	9.0	E.		29	12.8	E.		31	15.0	W.		29	6.9	W.
	10	8.1	E.		8	12.0	E.		10	14.0	W.		8	18.0	W.
	20	7.1	E.		18	11.1	E.		20	13.1	W.		18	17.1	W.
	30	18.2	E.		28	10.3	E.		30	12.2	W.		28	16.3	W.

SATELLITE I.

Jan.		h m		April	h m		July	h m		Sept.	h m			
12	6	22.0		9	0	23.7		2	21	49.5		25	19	33.0
14	0	52.2		10	18	52.0		4	16	15.6		27	14	1.7
15	19	22.4		12	13	20.1		6	10	41.5		29	8	30.6
17	13	52.6		14	7	48.1		8	5	7.6	Oct.	1	2	59.5
19	8	22.8		16	2	16.1		9	23	33.6		2	21	28.4
21	2	53.0		17	20	44.1		11	17	59.6	4	15	57.4	
22	21	23.1		19	15	12.0		13	12	25.7	6	10	26.4	
24	15	53.2		21	9	39.8		15	6	51.8	8	4	55.6	
26	10	23.3		23	4	7.5		17	1	18.0	9	23	24.7	
28	4	53.4		24	22	35.2		18	19	44.2	11	17	54.0	
29	23	23.4		26	17	2.6		20	14	10.3	13	12	23.2	
31	17	53.4		28	11	30.2		22	8	36.6	15	6	52.5	
Feb. 2	12	23.4		30	5	57.6		24	3	2.8	17	1	21.8	
4	6	53.3	May	2	0	25.0		25	21	29.2	18	19	51.3	
6	1	23.2		3	18	52.3		27	15	55.6	20	14	20.7	
7	19	53.1		5	13	19.6		29	10	22.1	22	8	50.2	
9	14	23.0		7	7	46.7	Aug.	31	4	48.7	24	3	19.8	
11	8	52.8		9	2	13.8		1	23	15.3	25	21	49.4	
13	3	22.6		10	20	40.8		3	17	42.0	27	16	19.1	
14	21	52.4		12	15	7.8		5	12	8.7	29	10	48.7	
16	16	22.1		14	9	34.7		7	6	35.3	31	5	18.4	
18	10	51.8		16	4	1.6		9	1.	2.2	1	23	48.1	
20	5	21.5		17	22	28.3		10	19	29.1	3	18	18.0	
21	23	51.0		19	16	55.1		12	13	56.0	5	12	47.8	
23	18	20.6		21	11	21.7		14	8	23.1	7	7	17.6	
25	12	50.1		23	5	48.4		16	2	50.3	9	1	47.5	
27	7	19.6		25	0	14.9		17	21	17.5	10	20	17.4	
March 1	1	49.0		26	18	41.4		19	15	44.7	12	14	47.4	
2	20	18.4		28	13	7.8		21	10	11.9	14	9	17.4	
4	14	47.7		30	7	34.2		23	4	39.3	16	3	47.5	
6	9	17.1	June	1	2	0.5		24	23	6.7	17	22	17.7	
8	3	46.4		2	20	26.8		26	17	34.3	19	16	47.7	
9	22	15.6		4	14	53.0		28	12	1.9	21	11	17.8	
11	16	44.7		6	9	19.3		30	6	29.6	23	5	47.9	
13	11	13.8		8	3	45.5	Sept.	1	0	57.3	25	0	18.1	
15	5	42.8		9	22	11.6		2	19	25.1	26	18	48.3	
17	0	11.8		11	16	37.7		4	13	52.9	28	13	18.5	
18	18	40.8		13	11	3.8		6	8	20.9	30	7	48.8	
20	13	9.8		15	5	29.8		8	2	48.9	Dec. 2	2	19.1	
22	7	38.6		16	23	55.9		9	21	17.1	3	20	49.3	
24	2	7.4		18	18	21.9		11	15	45.2	5	15	19.6	
25	20	36.1		20	12	48.0		13	10	13.4	7	9	50.0	
27	15	4.8		22	7	13.9		15	4	41.6	9	4	20.4	
29	9	33.3		24	1	39.9		16	23	10.0	10	22	50.7	
31	4	1.8		25	20	5.8		18	17	38.4	12	17	21.1	
April 1	22	30.4		27	14	31.8		20	12	7.0	14	11	51.4	
3	16	58.9		29	8	57.7		22	6	35.6	16	6	21.8	
5	11	27.2	July	1	3	23.6		24	1	4.2	18	0	52.2	
7	5	55.5												

WASHINGTON MEAN TIME OF SUPERIOR GEOCENTRIC CONJUNCTION.

SATELLITE II.

		h	m			h	m			h	m				
Jan.	12	22	11.3	April	8	6	25.4	July	2	10	35.6	Sept.	25	15	26.3
	16	11	35.2		11	19	41.2		5	23	42.9		29	4	46.0
	20	0	58.9		15	8	56.3		9	12	50.1		2	18	5.1
	23	14	22.3		18	22	11.0		13	1	57.9		6	7	25.9
	27	3	45.6		22	11	25.2		16	15	5.5		9	20	45.9
Feb.	30	17	8.7	May	26	0	38.8	Aug.	20	4	14.0	Nov.	13	10	7.5
	3	6	31.5		29	13	51.9		23	17	22.2		16	23	28.4
	6	19	54.1		3	3	4.5		27	6	31.3		20	12	50.9
	10	9	16.3		6	16	16.5		30	19	40.3		24	2	12.5
	13	22	38.2		10	5	28.1		3	8	50.3		27	15	35.9
March	17	11	59.8	June	13	18	39.1	Sept.	6	22	0.3	Dec.	31	4	58.4
	21	1	21.3		17	7	49.7		10	11	11.4		3	18	22.5
	24	14	42.4		20	20	59.8		14	0	22.5		7	7	45.8
	28	4	3.3		24	10	9.4		17	13	35.0		10	21	10.4
	3	17	23.7		27	23	18.6		21	2	47.1		14	10	34.1
	7	6	43.8		31	12	27.5		24	16	0.8		17	23	59.2
	10	20	3.3		4	1	35.9		28	5	14.1		21	13	23.4
	14	9	22.5		7	14	44.2		31	18	29.0		25	2	49.0
	17	22	41.3		11	3	51.9		4	7	43.6		28	16	13.7
	21	11	59.7		14	16	59.5		7	20	59.6		2	5	39.5
April	25	1	17.7		18	6	6.7		11	10	15.4		5	19	4.6
	28	14	35.3		21	19	14.1		14	23	32.8		9	8	30.8
	1	3	52.4		25	8	21.2		18	12	49.6		12	21	55.9
	4	17	9.1		28	21	28.6		22	2	8.2		16	11	22.2

SATELLITE III.

		h	m			h	m			h	m			h	m	
Jan.	16	0	44.5	April	12	3	22.4	July	6	21	17.5	Sept.	30	16	42.1	
	23	5	10.7		19	7	13.3		14	0	34.8		Oct.	7	20	46.7
	30	9	35.6		26	11	0.5		21	3	54.1			15	0	54.6
Feb.	6	13	58.2	May	3	14	42.3	Aug.	28	7	16.0		22	5	6.1	
	13	18	18.7		10	18	19.8		4	10	41.9		29	9	21.1	
March	20	22	37.2	June	17	21	52.5	Sept.	11	14	11.3	Nov.	5	13	38.7	
	28	2	53.3		25	1	21.0		18	17	44.8		12	17	59.5	
	7	7	7.4		1	4	45.8		25	21	22.5		19	22	21.9	
	14	11	17.9		8	8	7.6		2	1	4.9	Dec.	27	2	46.4	
	21	15	25.1		15	11	27.3		9	4	52.4		4	7	12.2	
April	28	19	28.2		22	14	44.7		16	8	44.4		11	11	39.3	
	4	23	27.2		29	18	1.3		23	12	41.3		18	16	7.9	

SATELLITE IV.

		h	m			h	m			h	m				
Jan.	20	8	22.2	April	14	8	23.5	July	6	13	6.6	Sept.	27	20	48.8
Feb.	6	4	39.6	May	1	1	18.8		23	3	30.9	Oct.	14	15	23.6
	23	0	32.9		17	17	17.4	Aug.	8	18	29.6		31	10	42.3
March	11	19	53.6	June	3	8	24.8		25	10	18.7	Nov.	17	6	35.3
	28	14	32.7		19	22	53.3	Sept.	11	3	5.5	Dec.	4	2	55.0

WASHINGTON MEAN TIME.

JANUARY.

THE SATELLITES OF JUPITER

ARE NOT VISIBLE UNTIL JANUARY 11,

JUPITER BEING TOO NEAR THE SUN.

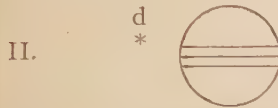
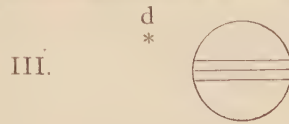
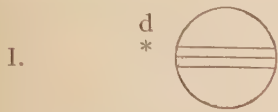
d	h	m	s		d	h	m	s		d	h	m	s	
11	0	46		II.	18	6	2		II.	25	7	22		II.
	1	43		II.		7	15		II.		8	39		II.
	3	26		II.		9	29		I.		10	4		II.
	4	25		II.		10	5		I.		11	22		I.
	7	35		I.		11	44		I.		12	5		I.
	8	4		I.		12	21		I.		13	38		I.
	9	50		I.		6	40	15.4	I.		14	21		I.
	10	20		I.		9	31		I.		8	34	11.8	I.
12	4	46	15.7	I.		11	1		III.		11	31		I.
	7	3		III.		13	29		III.		14	59		III.
	7	30		I.		13	39		III.		17	38		III.*
	9	3		III.		16	13		III.		17	53		III.*
	9	40		III.		22	26	36.5	II.		20	39		III.
	11	46		III.		2	20		II.		1	0	29.4	II.
	19	52	32.1	II.		3	57		I.		5	7		II.
	23	32		II.		4	35		I.		5	51		I.
13	2	4		I.		6	13		I.		6	35		I.
	2	34		I.		6	51		I.		8	6		I.
	4	19		I.		1	8	42.7	I.		8	51		I.
	4	50		I.		4	1		I.		3	2	38.3	I.
	23	14	43.8	I.		16	40		II.		6	1		I.
14	2	0		I.		17	57		II.*		19	16		II.
	14	4		II.		19	21		II.		20	46		II.
	15	8		II.		20	39		II.		21	57		II.
	16	44		II.		22	26		I.		23	29		II.
	17	50		II.		23	5		I.		29	0	19	I.
	20	32		I.		0	41		I.		1	5		I.
	21	5		I.		1	21		I.		2	35		I.
	22	47		I.		19	37	14.4	I.		3	21		I.
	23	20		I.		22	31		I.		21	31	9.5	I.
15	17	43	16.1	I.		1	12	32.7	III.		0	31		I.
	20	30		I.		3	39	59.7	III.		5	10	54.3	III.
	21	14	20.5	III.		3	48		III.		7	39	38.3	III.
16	2	6		III.		6	33		III.		8	12		III.
	9	9	34.7	II.		11	43	34.2	II.		10	59		III.
	12	56		II.		15	44		II.		14	17	22.3	II.
	15	0		I.		16	54		I.		18	30		II.*
	15	35		I.		17	35		I.*		18	48		I.
	17	16		I.		19	9		I.		19	34		I.
	17	50		I.		19	51		I.		21	3		I.
17	12	11	42.3	I.		24	14	5	I.		21	50		I.
	15	0		I.		17	1	39.4	I.		15	59	33.9	I.
18	3	22		II.		25	5	58	II.		19	1		I.
	4	33		II.										

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

JANUARY

Phases of the Eclipses of the Satellites for an Inverting Telescope.*Configurations at 18^h 30^m for an Inverting Telescope.*

Day.	West.					East.			
1					○				
2					○				
3					○				
4					○				
5					○				
6					○				
7					○				
8					○				
9					○				
10					○				
11			2'	1'	○ ^{4'}		3'		
12			4'	3'	○ ²		1'		
13		4'	3'	1'	○		2'		
14	4'		3'		○ ²	1'			
15	4'		2'	3'	○				1' ●
16	4'			1'	○	2'	3'		
17		4'			○	1'	2'	3'	
18			4'	2'	○		3'		
19				4' 2' 3'	○		1'		
20			3'	1'	○	4'	2'		
21	○ 2'		3'		○	1'		4'	
22			2'	3'	○			4'	
23	○ 1'				○	2'	3'		4'
24					○	1'	2'	3'	4'
25				2' 1'	○		3'		4'
26	○ 3'			2'	○	1'		4'	
27			3'	1'	○		2' 4'		
28			3'		○ ⁴	2'	1'		
29			4' 3'	1'	○				
30		4'			○	1'	3'		2' ●
31	4'				○		2'	3'	1' ●

WASHINGTON MEAN TIME.

FEBRUARY.

d	h	m	s				d	h	m	s				d	h	m	s			
1	8	35		II.	Sh.	In.	10	6	7	45.2	II.	Ec.	Dis.	19	8	15		I.	Sh.	Eg.
	10	10		II.	Tr.	In.		9	37		I.	Sh.	In.		9	17		I.	Tr.	Eg.
	11	15		II.	Sh.	Eg.		10	33		I.	Tr.	In.	20	3	12	40.2	I.	Ec.	Dis.
	12	53		II.	Tr.	Eg.		10	38		II.	Oc.	Re.		6	30		I.	Oc.	Re.
	13	16		I.	Sh.	In.		11	53		I.	Sh.	Eg.		17	4	13.4	III.*	Ec.	Dis.
	14	4		I.	Tr.	In.		12	49		I.	Tr.	Eg.		19	36	47.2	III.	Ec.	Re.
	15	31		I.	Sh.	Eg.	11	6	50	22.2	I.	Ec.	Dis.		21	11		III.	Oc.	Dis.
	16	20		I.	Tr.	Eg.		10	1		I.	Oc.	Re.		21	57	50.3	II.	Ec.	Dis.
2	10	28	5.9	I.	Ec.	Dis.	12	0	29		II.	Sh.	In.	21	0	3		III.	Oc.	Re.
	13	31		I.	Oc.	Re.		2	20		II.	Tr.	In.		0	27		I.	Sh.	In.
	18	57		III.	Sh.	In.		3	10		II.	Sh.	Eg.		1	30		I.	Tr.	In.
	21	37		III.	Sh.	Eg.		4	6		I.	Sh.	In.		2	43		I.	Sh.	Eg.
	22	15		III.	Tr.	In.		5	3		I.	Tr.	In.		2	44		II.	Oc.	Re.
3	1	3		III.	Tr.	Eg.		5	4		II.	Tr.	Eg.		3	47		I.	Tr.	Eg.
	3	34	12.2	II.	Ec.	Dis.		6	21		I.	Sh.	Eg.		21	41	2.4	I.	Ec.	Dis.
	7	44		I.	Sh.	In.		7	19		I.	Tr.	Eg.	22	0	59		I.	Oc.	Re.
	7	53		II.	Oc.	Re.	13	1	18	52.3	I.	Ec.	Dis.		16	23		II.*	Sh.	In.
	8	34		I.	Tr.	In.		4	31		I.	Oc.	Re.		18	29		II.	Tr.	In.
	10	0		I.	Sh.	Eg.		13	6	22.5	III.	Ec.	Dis.		18	55		I.	Sh.	In.
	10	50		I.	Tr.	Eg.		15	37	39.7	III.	Ec.	Re.		19	5		II.	Sh.	Eg.
4	4	56	31.7	I.	Ec.	Dis.		16	54		III.*	Oc.	Dis.		20	0		I.	Tr.	In.
	8	1		I.	Oc.	Re.		19	24	29.4	II.	Ec.	Dis.		21	11		I.	Sh.	Eg.
	21	53		II.	Sh.	In.		19	44		III.	Oc.	Re.		21	14		II.	Tr.	Eg.
	23	34		II.	Tr.	In.		22	34		I.	Sh.	In.		22	16		I.	Tr.	Eg.
5	0	33		II.	Sh.	Eg.		23	32		I.	Tr.	In.	23	16	9	32.6	I.	Ec.	Dis.
	2	12		I.	Sh.	In.	14	0	0		II.	Oc.	Re.		19	29		I.	Oc.	Re.
	2	17		II.	Tr.	Eg.		0	50		I.	Sh.	Eg.	24	6	51		III.	Sh.	In.
	3	4		I.	Tr.	In.		1	49		I.*	Tr.	Eg.		9	34		III.	Sh.	Eg.
	4	28		I.	Sh.	Eg.		19	47	15.2	I.	Ec.	Dis.		11	11		III.	Tr.	In.
	5	20		I.	Tr.	Eg.		23	0		I.	Oc.	Re.		11	14	27.5	II.	Ec.	Dis.
6	23	25	2.2	I.	Ec.	Dis.	15	13	47		II.	Sh.	In.		13	24		I.	Sh.	In.
	2	31		I.	Oc.	Re.		15	43		II.	Tr.	In.		14	5		III.	Tr.	Eg.
	9	8	42.1	III.	Ec.	Dis.		16	28		II.	Sh.	Eg.		14	29		I.	Tr.	In.
	11	38	42.9	III.	Ec.	Re.		17	2		I.*	Sh.	In.		15	39		I.	Sh.	Eg.
	12	34		III.	Oc.	Dis.		18	2		I.*	Tr.	In.		16	5		II.	Oc.	Re.
	15	23		III.	Oc.	Re.		18	28		II.*	Tr.	Eg.		16	46		I.*	Tr.	Eg.
	16	51	0.6	II.	Ec.	Dis.		19	18		I.	Sh.	Eg.	25	10	37	56.5	I.	Ec.	Dis.
	20	41		I.	Sh.	In.		20	18		I.	Tr.	Eg.		13	58		I.	Oc.	Re.
	21	16		II.	Oc.	Re.	16	14	15	46.0	I.	Ec.	Dis.	26	5	41		II.	Sh.	In.
	21	34		I.	Tr.	In.		17	30		I.*	Oc.	Re.		7	51		II.	Tr.	In.
	22	56		I.	Sh.	Eg.	17	2	53		III.	Sh.	In.		7	52		I.	Sh.	In.
	23	50		I.	Tr.	Eg.		5	35		III.	Sh.	Eg.		8	23		II.	Sh.	Eg.
7	17	53	25.9	I.*	Ec.	Dis.		6	55		III.	Tr.	In.		8	58		I.	Tr.	In.
	21	1		I.	Oc.	Re.		8	41	10.0	II.	Ec.	Dis.		10	8		I.	Sh.	Eg.
8	11	11		II.	Sh.	In.		9	47		III.	Tr.	Eg.		10	36		II.	Tr.	Eg.
	12	57		II.	Tr.	In.		11	31		I.	Sh.	In.		11	15		I.	Tr.	Eg.
	13	52		II.	Sh.	Eg.		12	31		I.	Tr.	In.	27	5	6	25.9	I.	Ec.	Dis.
	15	9		I.	Sh.	In.		13	22		II.	Oc.	Re.		8	28		I.	Oc.	Re.
	15	41		II.	Tr.	Eg.		13	46		I.	Sh.	Eg.		21	2	8.1	III.	Ec.	Dis.
	16	4		I.	Tr.	In.		14	48		I.	Tr.	Eg.		23	35	57.9	III.	Ec.	Re.
	17	25		I.*	Sh.	Eg.	18	8	44	10.4	I.	Ec.	Dis.	28	0	31	4.7	II.	Ec.	Dis.
	18	20		I.*	Tr.	Eg.		12	0		I.	Oc.	Re.		1	26		III.	Oc.	Dis.
9	12	21	57.1	I.	Ec.	Dis.	19	3	5		II.	Sh.	In.		2	20		I.	Sh.	In.
	15	31		I.	Oc.	Re.		5	6		II.	Tr.	In.		3	28		I.	Tr.	In.
	22	55		III.	Sh.	In.		5	47		II.	Sh.	Eg.		4	20		III.	Oc.	Re.
10	1	36		III.	Sh.	Eg.		5	59		I.	Sh.	In.		4	36		I.	Sh.	Eg.
	2	36		III.	Tr.	In.		7	1		I.	Tr.	In.		5	26		II.	Oc.	Re.
	5	26		III.	Tr.	Eg.		7	51		II.	Tr.	Eg.		5	44		I.	Tr.	Eg.
															23	34	47.7	I.	Ec.	Dis.

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

FEBRUARY.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I. $\begin{matrix} d \\ * \end{matrix}$ 	III. $\begin{matrix} d & r \\ * & * \end{matrix}$ 
II. $\begin{matrix} d \\ * \end{matrix}$ 	IV. No Eclipse. 

Configurations at 17^h 30^m for an Inverting Telescope.

Day.	West.				East.			
1	4'		2' I'	○		3'		
2		4'		2' ○	3' I'			
3			4'	3' I'	○		2'	
4			3' 4'		○	2' I'		
5				9' I' 4'	○			
6					○	3' I' 4'		2' ●
7				I' ○		2'	3' 4'	
8	○ I'			2' ○		3'		4'
9			2'	○	I' 3'			4'
10			3' I'	○		2'		4'
11		3'		○		1' 2'		4'
12			3' 2' I'	○			4'	
13				2' ○	I' 4'			3' ●
14				I' 4' ○		2' 3'		
15	○ 2'		4'	○ I'			3'	
16		4'		2' ○		3'		I' ●
17			4'	3' I'	○	2'		
18	4'		3'		○	I' 2'		
19		4'	3'	2' I'	○			
20			4'		2' ○	I'		3' ●
21			4'		I' ○		2' 3'	
22				4' ○ 2' I'			3'	
23			2'	○		4'	3'	I' ●
24				3' I' ○	2'		4'	
25			3'		○	I' 2'		4'
26			3'		○			4'
27				2' 3'	○	I'		4'
28				I' ○		2' 3'		4'

WASHINGTON MEAN TIME.

MARCH.





d	h	m	s				d	h	m	s				d	h	m	s			
1	2	57		I.	Oc	Re.	11	14	25	23.5	I.	Ec	Dis.	21	11	32		I.	Tr.	Eg.
	18	59		II	Sh.	In.		17	53		I.	Oc	Re.		11	34	25.7	III	Ec	Re.
	20	48		I	Sh.	In.		19	35		IV	Oc	Dis.		13	23		II	Oc	Re.
	21	13		II	Tr.	In.		20	12		IV.	Oc	Re.		13	56		III	Oc	Dis.
	21	41		II	Sh.	Eg.	12	10	53		II.	Sh.	In.		16	54		III	Oc	Re.
	21	57		I.	Tr.	In.		11	38		I.	Sh.	In.	22	5	15	54.1	I.	Ec	Dis.
	23	4		I.	Sh.	Eg.		12	51		I.	Tr.	In.		8	47		I	Oc	Re.
	23	59		II.	Tr.	Eg.		13	17		II	Tr.	In.	23	2	28		I	Sh.	In.
2	0	13		I.	Tr.	Eg.		13	36		II.	Sh.	Eg.		2	47		II	Sh.	In.
	18	3	17.3	I.	Ec.	Dis.		13	54		I.	Sh.	Eg.		3	44		I.	Tr.	In.
	21	27		I.	Oc	Re.		15	8		I.	Tr.	Eg.		4	44		I.	Sh.	Eg.
3	10	48		III.	Sh.	In.		16	3		II.	Tr.	Eg.		5	17		II	Tr.	In.
	13	33		III.	Sh.	Eg.	13	8	53	52.2	I.	Ec	Dis.		5	31		II	Sh.	Eg.
	13	47	39.3	II.	Ec.	Dis.		12	22		I.	Oc	Re.		6	1		I.	Tr.	Eg.
	15	17		I.	Sh.	In.	14	4	58	39.4	III.	Ec.	Dis.		8	4		II	Tr.	Eg.
	15	25		III.	Tr.	In.		5	37	19.3	II.	Ec.	Dis.		23	44	22.6	I.	Ec.	Dis.
	16	26		I.*	Tr.	In.		6	6		I.	Sh.	In.	24	3	16		I.	Oc	Re.
	17	33		I.*	Sh.	Eg.		7	20		I.	Tr.	In.		20	56		I.	Sh.	In.
	18	20		III.	Tr.	Eg.		7	35	0.6	III.	Ec.	Re.		21	26	54.3	II.	Ec.	Dis.
	18	43		I.	Tr.	Eg.		8	22		I.	Sh.	Eg.		22	13		I.	Tr.	In.
	18	46		II.	Oc	Re.		9	37		I.	Tr.	Eg.		22	40		III.	Sh.	In.
4	12	31	40.8	I.	Ec.	Dis.		9	50		III.	Oc.	Dis.		23	12		I.	Sh.	Eg.
	15	56		I.	Oc	Re.		10	46		II.	Oc	Re.	25	0	29		I.	Tr.	Eg.
5	8	17		II.	Sh.	In.		12	46		III.	Oc	Re.		1	29		III.	Sh.	Eg.
	9	45		I.	Sh.	In.	15	3	22	12.6	I.	Ec.	Dis.		2	41		II.	Oc.	Re.
	10	35		II.	Tr.	In.		6	51		I.	Oc	Re.		3	47		III.	Tr.	In.
	10	55		I.	Tr.	In.	16	0	11		II.	Sh.	In.		6	46		III.	Tr.	Eg.
	11	0		II.	Sh.	Eg.		0	35		I.	Sh.	In.		18	12	45.4	I.	Ec.	Dis.
	12	1		I.	Sh.	Eg.		1	49		I.	Tr.	In.		21	44		I.	Oc	Re.
	13	12		I.	Tr.	Eg.		2	37		II.	Tr.	In.	26	15	24		I.*	Sh.	In.
	13	20		II.	Tr.	Eg.		2	51		I.	Sh.	Eg.		16	5		II.*	Sh.	In.
6	7	0	10.0	I.	Ec.	Dis.		2	54		II.	Sh.	Eg.		16	41		I.*	Tr.	In.
	10	26		I.	Oc	Re.		4	6		I.	Tr.	Eg.		17	40		I.	Sh.	Eg.
7	1	0	39.6	III.	Ec.	Dis.		5	23		II.	Tr.	Eg.		18	36		II.	Tr.	In.
	3	4	13.9	II.	Ec.	Dis.		21	50	41.9	I.	Ec.	Dis.		18	49		II.	Sh.	Eg.
	3	35	45.4	III.	Ec.	Re.	17	1	20		I.	Oc	Re.		18	58		I.	Tr.	Eg.
	4	13		I.	Sh.	In.		18	43		III.	Sh.	In.		21	23		II.	Tr.	Eg.
	5	24		I.	Tr.	In.		18	53	51.3	II.	Ec.	Dis.	27	12	41	14.0	I.	Ec.	Dis.
	5	40		III.	Oc.	Dis.		19	3		I.	Sh.	In.		16	13		I.*	Oc	Re.
	6	29		I.	Sh.	Eg.		20	18		I.	Tr.	In.		16	13		I.	Sh.	In.
	7	41		I.	Tr.	Eg.		21	19		I.	Sh.	Eg.	28	9	52		II.	Ec.	Dis.
	8	7		II.	Oc	Re.		21	30		III.	Sh.	Eg.		11	10	25.4	I.	Tr.	In.
	8	35		III.	Oc	Re.		22	35		I.	Tr.	Eg.		12	9		I.	Sh.	Eg.
8	1	28	31.2	I.	Ec.	Dis.		23	43		III.	Tr.	In.		12	54	28.8	III.	Ec.	Dis.
	4	55		I.	Oc	Re.	18	0	4		II.	Oc	Re.		13	27		I.	Tr.	Eg.
	21	35		II.	Sh.	In.		2	40		III.	Tr.	Eg.		13	56		IV.	Oc	Dis.
	22	41		I.	Sh.	In.		16	19	4.6	I.*	Ec.	Dis.		15	9		IV.*	Oc	Re.
	23	53		I.	Tr.	In.		19	49		I.	Oc	Re.		15	33	20.2	III.*	Ec.	Re.
	23	56		II.	Tr.	In.	19	13	29		II.	Sh.	In.		15	59		II.*	Oc	Re.
9	0	18		II.	Sh.	Eg.		13	31		I.	Sh.	In.		17	59		III.	Oc	Dis.
	0	57		I.	Sh.	Eg.		14	47		I.	Tr.	In.		20	58		III.	Oc	Re.
	2	10		I.	Tr.	Eg.		15	47		I.*	Sh.	Eg.	29	7	9	34.6	I.	Ec.	Dis.
	2	42		II.	Tr.	Eg.		15	57		II.*	Tr.	In.		10	42		I.	Oc	Re.
	19	57	0.4	I.	Ec.	Dis.		16	13		II.*	Sh.	Eg.	30	4	21		I.	Sh.	In.
	23	24		I.	Oc	Re.		17	4		I.*	Tr.	Eg.		5	24		II.	Sh.	In.
10	14	45		III.	Sh.	In.		18	44		II.	Tr.	Eg.		5	38		I.	Tr.	In.
	16	20	46.7	II.*	Ec.	Dis.	20	4	12		IV.	Tr.	In.		6	37		I.	Sh.	Eg.
	17	10		I.*	Sh.	In.		5	9		IV.	Tr.	Eg.		7	55		I.	Tr.	Eg.
	17	31		III.*	Sh.	Eg.		10	47	33.4	I.	Ec.	Dis.		7	55		II.	Tr.	In.
	18	22		I.	Tr.	In.		14	18		I.	Oc	Re.		8	7		II.	Sh.	Eg.
	19	26		I.	Sh.	Eg.	21	7	59		I.	Sh.	In.		10	42		II.	Tr.	Eg.
	19	35		III.	Tr.	In.		8	10	22.7	II.	Ec.	Dis.	31	1	37	58.0	I.	Ec.	Dis.
	20	39		I.	Tr.	Eg.		8	56	46.1	III.	Ec.	Dis.		5	10		I.	Oc	Re.
	21	26		II.	Oc	Re.		9	15		I.	Tr.	In.		22	49		I.	Sh.	In.
	22	32		III.	Tr.	Eg.		10	15		I.	Sh.	Eg.		23	59	57.3	II	Ec.	Dis

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

MARCH

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.	d *		III.	d * r *	
II.	d *		IV. No Eclipse.		

Configurations at 16^h 30^m for an Inverting Telescope.

Day.	West			East.	
1			○	2' 1'	4'
2		2'	○	4'	3'
3	○ 3' ○ 1'		○		2' ●
4		4' 3'	○	1'	2'
5		4' 3'	○		
6	4'		○	1'	
7	4'	1'	○	3' 2'	
8	4'		○	1'	3'
9	4'	2'	○		3'
10		4'	○	1' 3'	2' ●
11		3'	○	4'	1' ●
12	3'		○	1' 2'	
13		3' 2'	○	1'	4'
14		1'	○	3' 2'	4'
15			○	1' 2'	3' 4'
16		2' 1'	○		3' 4'
17		2'	○	1' 3'	4'
18		3'	○		2' 4' 1' ●
19	○ 1' ○ 2'	3'	○	4'	
20		3' 2' 4'	○	1'	
21		4' 1'	○	2'	3' ●
22	4'		○	1' 2'	3'
23	4'	2' 1'	○		3'
24	4'	2'	○	1' 3'	
25	4'	3' 1'	○		2'
26		4' 3'	○	1' 2'	
27		3' 2' 4'	○	1'	
28		1' 3'	○	4' 2'	
29			○	1' 2'	3' 4'
30		1' 2'	○		3' 4'
31		2'	○	1' 3'	4'

WASHINGTON MEAN TIME.

APRIL.

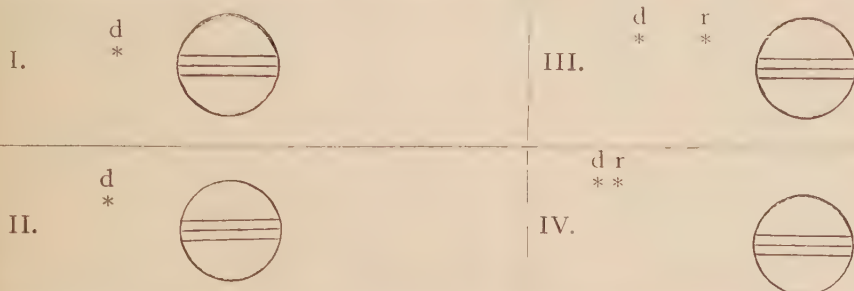
d	h	m	s				d	h	m	s				d	h	m	s			
1	0	6		I.	Tr.	In.	10	20	0		I.	Oc.	Re.	20	15	57		II.	Sh.	Eg.
	1	5		I.	Sh.	Eg.	11	13	38		I.*	Sh.	In.		18	26		II.	Tr.	Eg.
	2	23		I.	Tr.	Eg.		14	55		I.*	Tr.	In.	21	7	19	5.8	I.	Ec.	Dis.
	2	38		III.	Sh.	In.		15	49	34.2	II.*	Ec.	Dis.		10	48		I.	Oc.	Re.
	5	16		II.	Oc.	Re.		15	55		I.*	Sh.	Eg.	22	4	28		I.	Sh.	In.
	5	28		III.	Sh.	Eg.		17	12		I.	Tr.	Eg.		5	42		I.	Tr.	In.
	7	48		III.	Tr.	In.		20	49	55.2	III.	Ec.	Dis.		6	45		I.	Sh.	Eg.
	10	48		III.	Tr.	Eg.		21	5		II.	Oc.	Re.		7	39	21.4	II.	Ec.	Dis.
	20	6	25.6	I.	Ec.	Dis.		23	31	15.0	III.	Ec.	Re.		7	59		I.	Tr.	Eg.
	23	39		I.	Oc.	Re.	12	1	52		III.	Oc.	Dis.		12	49		II.	Oc.	Re.
2	17	17		I.*	Sh.	In.		4	53		III.	Oc.	Re.		14	31		III.*	Sh.	In.
	18	35		I.	Tr.	In.		10	56	55.8	I.	Ec.	Dis.		15	32		IV.	Tr.	In.
	18	42		II.	Sh.	In.		14	29		I.*	Oc.	Re.		17	15		IV.	Tr.	Eg.
	19	33		I.	Sh.	Eg.	13	8	7		I.	Sh.	In.		17	24		III.	Sh.	Eg.
	20	52		I.	Tr.	Eg.		9	23		I.	Tr.	In.		19	25		III	Tr.	In.
	21	14		II.	Tr.	In.		10	23		I.	Sh.	Eg.		22	27		III	Tr.	Eg.
	21	26		II.	Sh.	Eg.		10	36		II.	Sh.	In.	23	1	47	29.1	I.	Ec.	Dis.
3	0	0		II.	Tr.	Eg.		11	40		I.	Tr.	Eg.		5	16		I.	Oc.	Re.
	14	34	54.6	I.*	Ec.	Dis.		13	6		II.	Tr.	In.		22	56		I.	Sh.	In.
	18	7		I.	Oc.	Re.		13	20		II.*	Sh.	Eg.	24	0	9		I	Tr.	In.
4	11	45		I.	Sh.	In.		15	53		II.	Tr.	Eg.		1	13		I.	Sh.	Eg.
	13	3		I.	Tr.	In.	14	5	25	23.9	I.	Ec.	Dis.		2	27		I.	Tr.	Eg.
	13	16	28.5	II.	Ec.	Dis.		7	35		IV.	Oc.	Dis.		2	30		II.	Sh.	In.
	14	2		I.*	Sh.	Eg.		8	57		I.	Oc.	Re.		4	52		II.	Tr.	In.
	15	20		I.*	Tr.	Eg.		9	12		IV.	Oc.	Re.		5	15		II	Sh.	Eg.
	16	52	4.2	III.	Ec.	Dis.	15	2	35		I.	Sh.	In.		7	41		II.	Tr.	Eg.
	18	33		II.	Oc.	Re.		3	51		I.	Tr.	In.		20	15	58.4	I.	Ec.	Dis.
	19	32	10.0	III.	Ec.	Re.		4	51		I.	Sh.	Eg.		23	44		I.	Oc.	Re.
	21	57		III.	Oc.	Dis.		5	6	9.4	II.	Ec.	Dis.	25	17	25		I.	Sh.	In.
5	0	58		III.	Oc.	Re.		6	8		I.	Tr.	Eg.		18	37		I.	Tr.	In.
	9	3	15.2	I.	Ec.	Dis.		10	20		II.	Oc.	Re.		19	41		I.	Sh.	Eg.
	12	36		I.	Oc.	Re.		10	34		III.	Sh.	In.		20	54		I.	Tr.	Eg.
	22	15		IV.	Tr.	In.		13	26		III.*	Sh.	Eg.		20	55	58.6	II.	Ec.	Dis.
	23	42		IV.	Tr.	Eg.		15	37		III.*	Tr.	In.	26	2	3		II.	Oc.	Re.
6	6	14		I.	Sh.	In.		18	39		III.	Tr.	Eg.		4	46	29.3	III.	Ec.	Dis.
	7	31		I.	Tr.	In.		23	53	47.0	I.	Ec.	Dis.		7	30	15.7	III	Ec.	Re.
	8	0		II.	Sh.	In.	16	3	25		I.	Oc.	Re.		9	29		III.	Oc.	Dis.
	8	30		I.	Sh.	Eg.		21	3		I.	Sh.	In.		12	32		III.*	Oc.	Re.
	9	48		I.	Tr.	Eg.		22	19		I.	Tr.	In.		14	44	20.0	I.*	Ec.	Dis.
	10	32		II.	Tr.	In.		23	20		I.	Sh.	Eg.		18	11		I.	Oc.	Re.
	10	44		II.	Sh.	Eg.		23	54		II.	Sh.	In.	27	11	53		I.	Sh.	In.
	13	18		II.	Tr.	Eg.	17	0	36		I.	Tr.	Eg.		13	4		I.*	Tr.	In.
7	3	31	43.3	I.	Ec.	Dis.		2	22		II.	Tr.	In.		14	10		I.*	Sh.	Eg.
	7	4		I.	Oc.	Re.		2	38		II.	Sh.	Eg.		15	22		I.*	Tr.	Eg.
8	0	42		I.	Sh.	In.		5	10		II.	Tr.	Eg.		15	48		II.*	Sh.	In.
	1	59		I.	Tr.	In.		18	22	16.1	I.	Ec.	Dis.		18	7		II.	Tr.	In.
	2	33	1.8	II.	Ec.	Dis.		21	53		I.	Oc.	Re.		18	33		II.	Sh.	Eg.
	2	58		I.	Sh.	Eg.	18	15	32		I.*	Sh.	In.		20	55		II.	Tr.	Eg.
	4	16		I.	Tr.	Eg.		16	47		I.*	Tr.	In.	28	9	12	48.8	I.	Ec.	Dis.
	6	36		III.	Sh.	In.		17	48		I.	Sh.	Eg.		12	39		I.*	Oc.	Re.
	7	49		II	Oc.	Re.		18	22	43.7	II.	Ec.	Dis.	29	6	21		I.	Sh.	In.
	9	27		III.	Sh.	Eg.		19	4		I	Tr.	Eg.		7	32		I.	Tr.	In.
	11	44		III.	Tr.	In.		23	35		II.	Oc.	Re.		8	38		I.	Sh.	Eg.
	14	45		III.*	Tr.	Eg.	19	0	47	52.2	III.	Ec.	Dis.		9	49		I.	Tr.	Eg.
	22	0	6.0	I.	Ec.	Dis.		3	30	25.6	III	Ec.	Re.		10	12	39.7	II.	Ec.	Dis.
9	1	32		I.	Oc.	Re.		5	42		III.	Oc.	Dis.		15	16		II.*	Oc.	Re.
	19	10		I.	Sh.	In.		8	45		III	Oc.	Re.		18	29		III.	Sh.	In.
	20	27		I.	Tr.	In.		12	50	37.2	I.	Ec.	Dis.		21	23		III.	Sh.	Eg.
	21	18		II.	Sh.	In.		16	21		I.*	Oc.	Re.		23	8		III.	Tr.	In.
	21	27		I.	Sh.	Eg.	20	10	0		I.	Sh.	In.	30	2	11		III.	Tr.	Eg.
	22	44		I.	Tr.	Eg.		11	14		I.	Tr.	In.		3	41	12.9	I.	Ec.	Dis.
	23	49		II.	Tr.	In.		12	16		I.	Sh.	Eg.		7	6		I.	Oc.	Re.
10	0	2		II.	Sh.	Eg.		13	12		II.*	Sh.	In.		14	6	18.3	IV.*	Ec.	Dis.
	2	36		II.	Tr.	Eg.		13	32		I.*	Tr.	Eg.		14	52	26.9	IV.*	Ec.	Re.
	16	28	34.8	I.	Ec.	Dis.		15	37		II.*	Tr.	In.							

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

APRIL.

Phases of the Eclipses of the Satellites for an Inverting Telescope.*Configurations at 15^h 30^m for an Inverting Telescope.*

Day.	West.				East.		
1			'13	○	'2		'4
2		3'		○	I' 2'		4'
3		'3,	2'	○		4'	'1 ●
4			'3 I'	○		4'	'2
5				○	.1 4'	'3 2'	
6			4' I' 2'	○		'3	
7		4'	'2	○	'I	3'	
8	4'		'I 3'	○	'2		
9	4'	3'		○	I' 2'		
10	'4	'3	2' 'I	○			
11	○ I'	'4	'3 '2	○			
12		'4		○	'I '3 '2		
13	○ 2'		'4 I'	○		'3	
14			'2	○	'4 'I 3'		
15	○ 3'		I'	○	'2	'4	
16		3'		○	I' 2'		'4
17		'3	2' 'I	○			'4
18			'3 '2	○ I'			4'
19				○	'3 '2		4' 'I ●
20	○ 2'		I'	○		'3 4'	
21			'2	○	'I 4' 3'		
22	○ 4'		I'	○	.2 3'		
23			3' 4'	○	I' 2'		
24		4' 3'	2' 'I	○			
25	4'		'3 '2	○	I'		
26	4'			○	'3 '2		'I
27	'4			I' ○	2'	'3	
28		'4	2'	○	'I	3'	
29		'4	I'	○	'2 3'		
30			3' '4	○	'I 2'		

WASHINGTON MEAN TIME.

MAY.

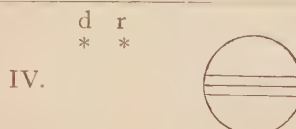
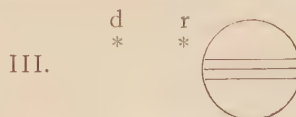
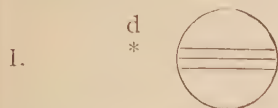
d	h	m	s		d	h	m	s		d	h	m	s		d	h	m	s	
1	0	24		IV.	10	18	31	52.1	I.	21	9	22	39.4	I.	23	3	51	11.7	I.
	0	50		I.		19	52		III.		6	57		I.		6	57		I.
	1	59		I.		21	49		I.		12	30		I.		0	58		I.
	2	13		IV.	11	15	39		I.*		12	57		III.*		1	48		I.
	3	5		I.		16	41		I.		6	30		I.		3	15		I.
	4	16		I.		17	56		I.		7	21		I.		4	5		I.
	5	5		II.		18	58		I.		8	47		I.		7	10	26.5	II.
	7	22		II.		20	59		II.		9	39		I.		11	29		II.*
	7	51		II.		23	0		II.		12	53		II.*		12	38	51.9	III.
	10	9		II.		23	45		II.		14	34		II.*		22	19	36.9	I.
	22	9	42.6	I.	12	1	48		II.		15	40		II.*		23	27	23.1	III.
2	1	34		I.		13	0	21.9	I.*		17	22		II.		23	29		IV.
	19	18		I.		16	16		I.		23	51		I.		1	23		IV.
	20	26		I.	13	10	8		I.		6	57		III.		2	53		III.
	21	33		I.		11	8		I.		0	58		III.		16	26		IV.
	22	43		I.		12	25		I.*		1	48		I.		17	52		IV.
	23	29	21.6	II.		13	25		I.*		3	15		I.		19	26		I.
3	4	29		II.		15	19	41.3	II.*		4	5		I.		20	14		I.
	8	44	37.2	III.		20	3		II.		7	10	26.5	II.		21	43		I.
	11	29	36.0	III.	14	2	24		III.		11	34		II.*		22	31		I.
	13	11		III.*		5	21		III.		20	38	51.9	III.		23	27	23.1	III.
	16	14		III.*		6	22		III.		22	19	36.9	I.		23	29		IV.
	16	38	5.1	I.		7	28	47.9	I.		23	27	23.1	III.		1	29		IV.
	20	1		I.		9	26		III.		23	49		III.		2	11		II.
4	13	46		I.*		10	43		I.		25	1	23	I.		3	44		II.
	14	53		I.*	15	4	36		I.		2	53		III.		4	58		II.
	16	2		I.*		5	35		I.		16	26		III.		6	33	8.4	II.
	17	10		I.		6	53		I.		17	52		II.		19	50		I.
	18	23		II.		7	52		I.		19	26		I.*		13	55		I.*
	20	35		II.		10	17		II.		20	14		I.*		14	41		I.*
	21	9		II.		12	12		II.*		21	43		I.*		16	12		I.*
	23	23		II.		13	3		II.*		22	31		I.		16	58		I.
5	11	6	34.2	I.		15	0		II.*		23	29		II.		20	27	25.4	II.
	14	28		I.*	16	1	57	18.4	I.		26	1	29	II.		22	31		II.
6	8	14		I.		5	10		I.		2	11		IV.		1	29		IV.
	9	20		I.		23	4		I.		3	44		II.		2	11		II.
	10	30		I.		0	1		I.		4	58		II.		3	44		II.
	11	38		I.		1	21		I.		6	33		II.		4	58		II.
	12	46	6.1	II.*		2	19		I.		16	48	8.4	II.		6	33		II.
	17	40		II.		4	36	33.8	II.		19	50		I.		19	50		I.
	22	26		III.		7	51	54.4	IV.		27	13	55	I.*		13	55		I.*
7	1	22		III.		9	8	46.8	IV.		14	41		I.*		14	41		I.*
	2	47		III.		9	14		II.		16	12		I.*		16	12		I.*
	5	34	58.7	I.		16	19		IV.*		16	58		I.		16	58		I.
	5	50		III.		16	40	54.1	III.		20	27	25.4	II.		20	27	25.4	II.
	8	55		I.		18	16		IV.		28	0	43	II.		22	31		II.
8	2	43		I.		19	28	14.9	III.		10	21		III.*		11	16	35.8	III.*
	3	47		I.		20	21		III.		11	16	35.8	I.*		13	20		III.*
	4	58		I.		20	25	42.6	I.		13	20		III.*		13	20		III.*
	6	5		I.		23	24		III.		13	20		III.*		13	20		III.*
	7	41		II.		23	37		I.		14	16		I.*		14	16		I.*
	9	48		II.	18	17	33		I.		16	24		III.		16	24		III.
	10	27		II.		18	28		I.		8	23		I.		16	24		I.
	12	36		II.		19	50		I.		9	7		I.		16	24		I.
	22	35		IV.		20	45		I.		10	40		I.		16	24		I.
	23	36		IV.		23	35		II.		11	24		I.*		16	24		I.*
9	0	3	29.1	I.	19	1	23		II.		15	29		II.*		16	24		II.*
	3	22		I.		2	21		II.		16	54		II.		16	24		II.
	7	57		IV.		4	12		II.		18	16		II.		16	24		II.
	9	50		IV.		14	54	13.3	I.*		19	42		II.		16	24		II.
	21	11		I.		18	4		I.		30	5	45	9.1	I.	16	24		I.
	22	14		I.		12	1		I.*		8	43		I.		16	24		I.
	23	28		I.		12	55		I.*		2	52		I.		16	24		I.
10	0	31		I.		14	18		I.*		3	33		I.		16	24		I.
	2	2	52.5	II.		15	12		I.*		5	9		I.		16	24		I.
	6	52		II.		17	53	27.3	II.		5	50		I.		16	24		I.
	12	42	57.8	III.*		22	24		II.		9	44	32.6	II.		16	24		II.
	15	29	8.2	III.*	21	6	23		III.		13	52		II.*		16	24		II.*
	16	48		III.		9	21		III.							16	24		II.*

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

MAY.

Phases of the Eclipses of the Satellites for an Inverting Telescope.*Configurations at 14^h 00^m for an Inverting Telescope.*

Day.	West.					East.			
1		3'		'1 2'	○	'4			
2			'3	'2	○	'1		'4	
3				'1	○	'2		'4	'3 ●
4					○	'1	'2	'3	'4
5			2'		○		3'		4' '1 ●
6				'1	○		3'		4' '2 ●
7				3'	○	'1	'2	4'	
8		3'		'1	○		4'		
9		'3	'2	4'	○	'1			
10		4'		'1	○	'2			'3 ●
11		4'			○	'1	'2	'3	
12	4'		2'		○		3'		'1 ●
13	'4			'2 1'	○		3'		
14	'4			3'	○	'1	'2		
15	○ 2'	'4	3'	'1	○				
16		'3	'4	'2	○	'1			
17			'1	'3	○	'2			
18					○	'1	'2	'3	
19			2'	'1	○		3'	'4	
20	○ 1'			'2	○		3'		'4
21			3'	'1	○	'1	'2		'4
22		3'		'1	○				4'
23		'3	'2		○	'1			4'
24			'1	'3	○	'2		4'	
25					○	4' '1	'3 2'		
26			'1		○			'3	
27		4'		'2	○	'1		3'	
28	○ 3'	4'			○		'2		'1 ●
29	4'		3'	'1	○	'2			
30	'4		'3	'2	○	'1			
31	'4			'3 1'	○	'2			

WASHINGTON MEAN TIME.

JUNE.

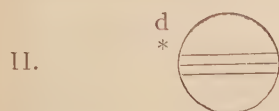
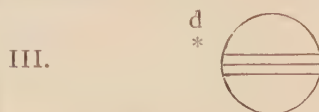
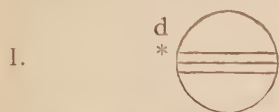
d	h	m	s				d	h	m	s				d	h	m	s			
1	0	13	35.7	I.	Ec.	Dis.	11	10	20		IV.	Sh.	In.	20	13	57		I.*	Oc.	Re.
	0	37	11.3	III.	Ec.	Dis.		12	7		IV.	Sh.	Eg.	21	8	33		I.	Sh.	In.
	3	9		I.	Ec.	Re.		14	18		IV.	Tr.	In.		8	46		I.*	Tr.	In.
	6	18		III.	Oc.	Re.		15	4	42.0	I.	Ec.	Dis.		10	50		I.*	Sh.	Eg.
	21	20		I.	Sh.	In.		16	21		IV.	Tr.	Eg.		11	3		I.*	Tr.	Eg.
	21	59		I.	Tr.	In.		17	46		I.	Oc.	Re.		17	28	20.9	II.	Ec.	Dis.
	23	37		I.	Sh.	Eg.		18	18		III.	Sh.	In.		20	38		II.	Oc.	Re.
2	0	17		I.	Tr.	Eg.		20	3		III.	Tr.	In.	22	5	56	0.6	I.	Ec.	Dis.
	4	47		II.	Sh.	In.		21	19		III.	Sh.	Eg.		8	22		I.	Oc.	Re.
	6	4		II.	Tr.	In.		23	7		III.	Tr.	Eg.		12	33	42.0	III.*	Ec.	Dis.
	7	34		II.	Sh.	Eg.	12	12	11		I.	Sh.	In.		16	17		III.	Oc.	Re.
	8	52		II.	Tr.	Eg.		12	36		I.*	Tr.	In.	23	3	2		I.	Sh.	In.
	18	42	8.0	I.	Ec.	Dis.		14	28		I.*	Sh.	Eg.		3	12		I.	Tr.	In.
	21	35		I.	Oc.	Re.		14	53		I.*	Tr.	Eg.		5	19		I.	Sh.	Eg.
3	1	43	10.3	IV.	Ec.	Dis.		20	40		II.	Sh.	In.		5	29		I.	Tr.	Eg.
	3	21	28.5	IV.	Ec.	Re.		21	29		II.	Tr.	In.		12	34		II.	Sh.	In.
	7	24		IV.	Oc.	Dis.		23	28		II.	Sh.	Eg.		12	53		II.*	Tr.	In.
	9	26		IV.	Oc.	Re.	13	0	18		II.	Tr.	Eg.		15	22		II.	Sh.	Eg.
	15	48		I.*	Sh.	In.		9	33	17.7	I.*	Ec.	Dis.		15	41		II.	Tr.	Eg.
	16	26		I.	Tr.	In.		12	12		I.*	Oc.	Re.	24	0	24	36.5	I.	Ec.	Dis.
	18	5		I.	Sh.	Eg.	14	6	39		I.	Sh.	In.		2	48		I.	Oc.	Re.
	18	43		I.	Tr.	Eg.		7	2		I.	Tr.	In.		21	30		I.	Sh.	In.
	23	1	37.1	II.	Ec.	Dis.		8	56		I.	Sh.	Eg.		21	38		I.	Tr.	In.
4	3	0		II.	Oc.	Re.		9	19		I.	Tr.	Eg.		23	48		I.	Sh.	Eg.
	13	10	36.4	I.*	Ec.	Dis.		14	53	28.9	II.*	Ec.	Dis.		23	55		I.	Tr.	Eg.
	14	20		III.*	Sh.	In.		18	24		II.	Oc.	Re.	25	6	45	44.1	II.	Ec.	Dis.
	16	2		I.*	Oc.	Re.	15	4	1	47.0	I.	Ec.	Dis.		9	45		II.	Oc.	Re.
	16	43		III.	Tr.	In.		6	38		I.	Oc.	Re.		18	53	9.1	I.	Ec.	Dis.
	17	20		III.	Sh.	Eg.		8	34	54.0	III.	Ec.	Dis.		21	14		I.	Oc.	Re.
	19	47		III.	Tr.	Eg.		12	59		III.*	Oc.	Re.	26	2	15		III.	Sh.	In.
5	10	17		I.*	Sh.	In.	16	1	8		I.	Sh.	In.		2	38		III.	Tr.	In.
	10	52		I.*	Tr.	In.		1	28		I.	Tr.	In.		5	18		III.	Sh.	Eg.
	12	34		I.*	Sh.	Eg.		3	25		I.	Sh.	Eg.		5	42		III.	Tr.	Eg.
	13	9		I.*	Tr.	Eg.		3	45		I.	Tr.	Eg.		15	59		I.*	Sh.	In.
	18	4		II.	Sh.	In.		9	58		II.*	Sh.	In.		16	5		I.*	Tr.	In.
	19	13		II.	Tr.	In.		10	37		II.*	Tr.	In.		18	16		I.	Sh.	Eg.
	20	52		II.	Sh.	Eg.		12	46		II.*	Sh.	Eg.		18	21		I.	Tr.	Eg.
	22	1		II.	Tr.	Eg.		13	26		II.*	Tr.	Eg.	27	1	52		II.	Sh.	In.
6	7	39	10.9	I.	Ec.	Dis.		22	30	21.5	I.	Ec.	Dis.		2	0		II.	Tr.	In.
	10	28		I.*	Oc.	Re.	17	1	4		I.	Oc.	Re.		4	40		II.	Sh.	Eg.
7	4	45		I.	Sh.	In.		19	36		I.	Sh.	In.		4	48		II.	Tr.	Eg.
	5	18		I.	Tr.	In.		19	54		I.	Tr.	In.		13	21	47.3	I.*	Ec.	Dis.
	7	2		I.	Sh.	Eg.		21	53		I.	Sh.	Eg.		15	40		I.*	Oc.	Re.
	7	35		I.	Tr.	Eg.		22	11		I.	Tr.	Eg.	28	4	16		IV.	Sh.	In.
	12	18	53.2	II.*	Ec.	Dis.	18	4	10	45.7	II.	Ec.	Dis.		4	40		IV.	Tr.	In.
	16	8		II.*	Oc.	Re.		7	31		II.	Oc.	Re.		6	22		IV.	Sh.	Eg.
8	2	7	38.6	I.	Ec.	Dis.		16	58	52.7	I.	Ec.	Dis.		6	45		IV.	Tr.	Eg.
	4	35	40.3	III.	Ec.	Dis.		19	30		I.	Oc.	Re.		10	27		I.*	Sh.	In.
	4	54		I.	Oc.	Re.		22	16		III.	Sh.	In.		10	31		I.*	Tr.	In.
	9	40		III.*	Oc.	Re.		23	21		III.	Tr.	In.		12	45		I.*	Sh.	Eg.
	23	14		I.	Sh.	In.	19	1	19		III.	Sh.	Eg.		12	47		I.*	Tr.	Eg.
	23	44		I.	Tr.	In.		2	25		III.	Tr.	Eg.		20	3	29.4	II.	Ec.	Dis.
9	1	31		I.	Sh.	Eg.		14	5		I.*	Sh.	In.		22	53		II.	Oc.	Re.
	2	1		I.	Tr.	Eg.		14	20		I.*	Tr.	In.	29	7	49		I.	Oc.	Dis.
	7	22		II.	Sh.	In.		16	22		I.	Sh.	Eg.		10	6		I.*	Oc.	Re.
	8	21		II.	Tr.	In.		16	37		I.	Tr.	Eg.		16	29		III.	Oc.	Dis.
	10	9		II.*	Sh.	Eg.		19	36	44.6	IV.	Ec.	Dis.		19	26	59.2	III.	Ec.	Re.
	11	9		II.*	Tr.	Eg.		21	32	24.6	IV.	Ec.	Re.	30	4	56		I.	Tr.	In.
	20	36	12.2	I.	Ec.	Dis.		21	51		IV.	Oc.	Dis.		4	56		I.	Sh.	In.
	23	20		I.	Oc.	Re.		23	16		II.	Sh.	In.		7	13		I.	Tr.	Eg.
10	17	42		I.	Sh.	In.		23	45		II.	Tr.	In.		7	13		I.	Sh.	Eg.
	18	10		I.	Tr.	In.		23	55		IV.	Oc.	Re.		15	7		II.*	Tr.	In.
	19	59		I.	Sh.	Eg.	20	2	4		II.	Sh.	Eg.		15	9		II.*	Sh.	In.
	20	27		I.	Tr.	Eg.		2	33		II.	Tr.	Eg.		17	55		II.	Tr.	Eg.
11	1	36	0.7	II.	Ec.	Dis.		11	27	29.7	I.*	Ec.	Dis.		17	58		II.	Sh.	Eg.
	5	16		II.	Oc.	Re.														

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

JUNE.

Phases of the Eclipses of the Satellites for an Inverting Telescope.*Configurations at 12^h 30^m for an Inverting Telescope.*

Day.	West.					East.				
1		'4			○	'3	'1	2°		
2				'4	'1	2°	○		'3	
3				'2			○	'4	'1	3°
4					'1	○	3°	'2	'4	
5	○	'1°		3°		○	2°			'4
6		3°		2°		○	'1			'4
7			'3	'1°	○					4° '2° ●
8					○	'3	'1	2°		4°
9				'1	2°	○		'3	4°	
10			'2		○	'1°	4°	3°		
11				'1	○	4°	3°	'2		
12			4° '3°		○	'1°	2°			
13		4° 3°		2°	○	'1				
14	4°		'3		'1	'2	○			
15	4°				○	'1	'2			'3° ●
16	○	2°	'4		'1°	○		'3		
17		'4		'2	○	'1°	3°			
18		'4		'1	○	'2	3°			
19			3°	'4	○	'1°	2°			
20		3°		2°	○	'4				'1° ●
21		'3		'2	'1°	○		'4		
22				'3	○	'1	'2		'4	
23	○	2°		'1°	○		'3		'4	
24			'2		○	'1°	3°		4°	
25				'1	○	'2	3°		4°	
26			3°		○	'1°	2°		4°	
27		3°		2°	'1	○	4°			
28	○	'1°		'3	'2	4°	○			
29		4°		'3	○	'1	'2			
30		4°		'1°	○	2°	'3			

WASHINGTON MEAN TIME.

JULY.

d	h	m	s				d	h	m	s				d	h	m	s			
1	2	15		I.	Oc.	Dis.	11	9	51		II.*	Sh.	Eg.	22	0	41		II.	Tr.	Eg.
	4	32		I.	Oc.	Re.		16	51		I.	Oc.	Dis.		1	45		II.	Sh.	Eg.
	23	21		I.	Tr.	In.		19	23	24.0	I.	Ec.	Re.		7	28		I.	Oc.	Dis.
	23	25		I.	Sh.	In.	12	13	58		I.*	Tr.	In.		10	15	23.7	I.*	Ec.	Re.
2	1	39		I.	Tr.	Eg.		14	16		I.*	Sh.	In.	23	2	26		IV.	Oc.	Dis.
	1	42		I.	Sh.	Eg.		16	15		I.	Tr.	Eg.		4	35		I.	Tr.	In.
	9	12		II.	Oc.	Dis.		16	34		I.	Sh.	Eg.		4	35		IV.	Oc.	Re.
	12	4	44.1	II.*	Ec.	Re.	13	0	34		II.	Oc.	Dis.		5	8		I.	Sh.	In.
	20	41		I.	Oc.	Dis.		3	59	1.7	II.	Ec.	Re.		6	52		I.	Tr.	Eg.
	23	0	18.0	I.	Ec.	Re.		11	17		I.*	Oc.	Dis.		7	26		I.	Sh.	Eg.
3	5	54		III.	Tr.	In.		13	52	5.0	I.*	Ec.	Re.		7	30	16.7	IV.	Ec.	Dis.
	6	14		III.	Sh.	In.		23	3		III.	Oc.	Dis.		9	54	19.5	IV.*	Ec.	Re.
	8	58		III.*	Tr.	Eg.	14	3	26	41.5	III.	Ec.	Re.		15	58		II.	Oc.	Dis.
	9	19		III.*	Sh.	Eg.		8	24		I.*	Tr.	In.		19	53	28.7	II.	Ec.	Re.
	17	48		I	Tr.	In.		8	45		I.*	Sh.	In.	24	1	54		I.	Oc.	Dis.
	17	53		I.	Sh.	In.		10	41		I.*	Tr.	Eg.		4	44	2.5	I.	Ec.	Re.
	20	5		I.	Tr.	Eg.		11	2		I.*	Sh.	Eg.		15	52		III.	Tr.	In.
	20	10		I.	Sh.	Eg.		19	1		IV.	Tr.	In.		18	13		III.	Sh.	In.
4	4	15		II.	Tr.	In.		19	37		II.	Tr.	In.		18	55		III.	Tr.	Eg.
	4	27		II.	Sh.	In.		20	21		II.	Sh.	In.		21	20		III.	Sh.	Eg.
	7	3		II.	Tr.	Eg.		21	8		IV.	Tr.	Eg.		23	1		I.	Tr.	In.
	7	16		II	Sh.	Eg.		22	15		IV.	Sh.	In.		23	37		I.	Sh.	In.
	15	7		I.	Oc.	Dis.		22	25		II.	Tr.	Eg.	25	1	19		I.	Tr.	Eg.
	17	28	58.1	I.	Ec.	Re.		23	9		II.	Sh.	Eg.		1	55		I.	Sh.	Eg.
5	12	14		I.*	Tr.	In.	15	0	35		IV.	Sh.	Eg.		11	1		II.*	Tr.	In.
	12	22		I.*	Sh.	In.		5	43		I.	Oc.	Dis.		12	14		II.*	Sh.	In.
	14	31		I.*	Tr.	Eg.		8	20	45.1	I.*	Ec.	Re.		13	49		II.*	Tr.	Eg.
	14	39		I.*	Sh.	Eg.	16	2	50		I.	Tr.	In.		15	3		II.	Sh.	Eg.
	22	19		II.	Oc.	Dis.		3	14		I.	Sh.	In.		20	21		I.	Oc.	Dis.
6	1	22	53.0	II.	Ec.	Re.		5	7		I.	Tr.	Eg.		23	12	46.2	I.	Ec.	Re.
	9	33		I.*	Oc.	Dis.		5	31		I.	Sh.	Eg.	26	17	28		I.	Tr.	In.
	11	57	32.8	I.*	Ec.	Re.		13	42		II.*	Oc.	Dis.		18	6		I.	Sh.	In.
	12	4		IV.*	Oc.	Dis.		17	16	57.4	II.	Ec.	Re.		19	45		I.	Tr.	Eg.
	15	43	9.5	IV.	Ec.	Re.	17	0	9		I.	Oc.	Dis.		20	23		I.	Sh.	Eg.
	19	46		III.	Oc.	Dis.		2	49	22.4	I.	Ec.	Re.	27	5	7		II.	Oc.	Dis.
	23	26	48.6	III.	Ec.	Re.		12	31		III.*	Tr.	In.		9	12	8.0	II.*	Ec.	Re.
7	6	40		I.	Tr.	In.		14	13		III.*	Sh.	In.		14	47		I.	Oc.	Dis.
	6	50		I.	Sh.	In.		15	34		III.	Tr.	Eg.		17	41	25.4	I.	Ec.	Re.
	8	57		I.*	Tr.	Eg.		17	20		III.	Sh.	Eg.	28	5	44		III.	Oc.	Dis.
	9	8		I.*	Sh.	Eg.		21	16		I.	Tr.	In.		11	27	24.0	III.*	Ec.	Re.
	17	22		II.	Tr.	In.		21	42		I.	Sh.	In.		11	54		I.*	Tr.	In.
	17	45		II.	Sh.	In.		23	33		I.	Tr.	Eg.		12	35		I.*	Sh.	In.
	20	10		II.	Tr.	Eg.	18	0	0		I.	Sh.	Eg.		14	12		I.	Tr.	Eg.
	20	33		II.	Sh.	Eg.		8	45		II.*	Tr.	In.		14	52		I.	Sh.	Eg.
8	3	59		I.	Oc.	Dis.		9	38		II.*	Sh.	In.	29	0	10		II.	Tr.	In.
	6	26	11.5	I.	Ec.	Re.		11	33		II.*	Tr.	Eg.		1	32		II.	Sh.	In.
9	1	6		I.	Tr.	In.		12	27		II.*	Sh.	Eg.		2	58		II.	Tr.	Eg.
	1	19		I.	Sh.	In.		18	36		I.	Oc.	Dis.		4	21		II.	Sh.	Eg.
	3	23		I.	Tr.	Eg.		21	18	5.0	I.	Ec.	Re.		9	14		I.*	Oc.	Dis.
	3	36		I.	Sh.	Eg.	19	15	42		I.	Tr.	In.		12	10	7.5	I.*	Ec.	Re.
	11	26		II.*	Oc.	Dis.		16	11		I.	Sh.	In.	30	6	21		I.	Tr.	In.
	14	40	42.2	II.*	Ec.	Re.		18	0		I.	Tr.	Eg.		7	3		I.	Sh.	In.
	22	25		I.	Oc.	Dis.		18	28		I.	Sh.	Eg.		8	38		I.*	Tr.	Eg.
10	0	54	47.5	I.	Ec.	Re.	20	2	50		II.	Oc.	Dis.		9	21		I.*	Sh.	Eg.
	9	12		III.*	Tr.	In.		6	35	26.9	II.	Ec.	Re.		18	16		II.	Oc.	Dis.
	10	14		III.*	Sh.	In.		13	2		I.*	Oc.	Dis.		22	30	15.7	II.	Ec.	Re.
	12	16		III.*	Tr.	Eg.		15	46	42.5	I.	Ec.	Re.	31	3	40		I.	Oc.	Dis.
	13	19		III.*	Sh.	Eg.		2	22		III.	Oc.	Dis.		6	38	48.3	I.	Ec.	Re.
	19	32		I.	Tr.	In.		7	26	58.6	III.	Ec.	Re.		9	42		IV.*	Tr.	In.
	19	48		I.	Sh.	In.		10	9		I.*	Tr.	In.		11	54		IV.	Tr.	Eg.
	21	49		I.	Tr.	Eg.		10	40		I.*	Sh.	In.		16	16		IV.*	Sh.	In.
	22	5		I.	Sh.	Eg.		12	26		I.*	Tr.	Eg.		18	48		IV.	Sh.	Eg.
11	6	29		II.	Tr.	In.		12	57		I.*	Sh.	Eg.		19	15		III.	Tr.	In.
	7	3		II.	Sh.	In.		21	53		II.	Tr.	In.		22	12		III.	Sh.	In.
	9	17		II.*	Tr.	Eg.		22	56		II.	Sh.	In.		22	19		III.	Tr.	Eg.

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

JULY

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.



III.



II.



IV.

*Configurations at 11^h 30^m for an Inverting Telescope.*

Day.	West.					East.			
1	4'		2'		○	'1		'3	
2	'4			'1	○		3'		'2 ●
3		'4		3'	○	1'	2'		
4		'4	3'	2' '1	○				
5			'3	'4 '2	○	1'			
6				'3	○		'2		'1 ●
7				1'	○	2'	'3 '4		
8			2'		○	'1		'3 '4	
9				1'	○		3'		'4 '2 ●
10	○ 3'				○	1'	2'		'4
11			3'	'1 2'	○				4'
12			'3	'2	○	1'		4'	
13				'3	○	'2	4'		'1 ●
14				1'	○	2' 3' 4'			
15			2'	4'	○	'1		'3	
16			4'	1' '2	○		3'		
17		4'			○	3'	'1 '2		
18	4'		3'	'1 2'	○				
19	'4		'3	'2	○	1'			
20	'4			'3 '1	○	'2			
21	○ 1'		'4		○	'3 2'			
22			'4	2'	○	'1		'3	
23				1' 2' 4'	○			3'	
24					○	3'	'1 '4 '2		
25	○ 2'		3'	'1	○			'4	
26			3'	'2	○	1'		'4	
27				'3 '1	○	'2			'4
28					○	1' '3	2'		4'
29			2'		○		'3	4'	'1 ●
30			'2 1'		○		3' 4'		
31					○	'1 3'	'2 4'		

WASHINGTON MEAN TIME.

AUGUST.

d	h	m	s				d	h	m	s				d	h	m	s			
1	0	47		I.	Tr.	In.	11	15	44		III.	Oc.	Re.	22	6	12		I.	Tr.	In.
	1	21		III.	Sh.	Eg.		16	25		I.	Sh.	In.		7	17		I.*	Sh.	In.
	1	32		I.	Sh.	In.		16	28	31.5	III.	Ec.	Dis.		8	29		I.*	Tr.	Eg.
	3	5		I.	Tr.	Eg.		17	46		I.	Tr.	Eg.		8	54		III.*	Tr.	Eg.
	3	49		I.	Sh.	Eg.		18	42		I.	Sh.	Eg.		9	35		I.*	Sh.	Eg.
	13	19		II.*	Tr.	In.		19	29	14.1	III.	Ec.	Re.		10	11		III.*	Sh.	In.
	14	49		II.	Sh.	In.		12	4	48	II.	Tr.	In.		13	23		III.	Sh.	Eg.
	16	6		II.	Tr.	Eg.		6	42		II.	Sh.	In.		20	22		II.	Tr.	In.
	17	39		II.	Sh.	Eg.		7	35		II.*	Tr.	Eg.		22	36		II.	Sh.	In.
	22	7		*I.	Oc.	Dis.		9	32		II.*	Sh.	Eg.		23	10		II.	Tr.	Eg.
2	1	7	32.2	I.	Ec.	Re.		12	47		I.*	Oc.	Dis.	23	1	26		II.	Sh.	Eg.
	19	14		I.	Tr.	In.		15	59	47.6	I.	Ec.	Re.		3	31		I.	Oc.	Dis.
	20	1		I.	Sh.	In.		13	9	56	I.*	Tr.	In.		6	52	12.8	I.	Ec.	Re.
	21	31		I.	Tr.	Eg.		10	53		I.*	Sh.	In.	24	0	39		I.	Tr.	In.
	22	18		I.	Sh.	Eg.		12	13		I.*	Tr.	Eg.		1	46		I.	Sh.	In.
3	7	26		II.	Oc.	Dis.		13	11		I.	Sh.	Eg.		2	57		I.	Tr.	Eg.
	11	49	5.2	II.*	Ec.	Re.		22	59		II.	Oc.	Dis.		4	4		I.	Sh.	Eg.
	16	33		I.	Oc.	Dis.		14	3	44	II.	Ec.	Re.		14	37		II.	Oc.	Dis.
	19	36	12.6	I.	Ec.	Re.		7	14	34.2	I.	Oc.	Dis.		19	41	18.1	II.	Ec.	Re.
4	9	10		III.*	Oc.	Dis.		10	28	29.5	I.*	Ec.	Re.		21	58		I.	Oc.	Dis.
	12	14		III.*	Oc.	Re.		15	2	13	III.	Tr.	In.	25	1	20	56.4	I.	Ec.	Re.
	12	28	52.8	III.*	Ec.	Dis.		4	23		I.	Tr.	In.		9	8		IV.*	Oc.	Dis.
	13	41		I.	Tr.	In.		5	18		III.	Tr.	Eg.		11	29		IV.*	Oc.	Re.
	14	29		I.	Sh.	In.		5	22		I.	Sh.	In.		19	7		I	Tr.	In.
	15	28	32.6	III.	Ec.	Re.		6	11		III.	Sh.	In.		19	29	3.8	IV.	Ec.	Dis.
	15	58		I.	Tr.	Eg.		6	40		I.	Tr.	Eg.		19	50		III.	Oc.	Dis.
	16	47		I.	Sh.	Eg.		7	40		I.	Sh.	Eg.		20	15		I.	Sh.	In.
5	2	28		II.	Tr.	In.		9	22		III.	Sh.	Eg.		21	24		I.	Tr.	Eg.
	4	7		II.	Sh.	In.		17	59		II.	Tr.	In.		22	16	31.0	IV.	Ec.	Re.
	5	16		II.	Tr.	Eg.		20	0		II.	Sh.	In.		22	33		I.	Sh.	Eg.
	6	56		II.	Sh.	Eg.		20	46		II.	Tr.	Eg.		22	55		III.	Oc.	Re.
	11	0		I.	Oc.	Dis.		22	50		II.	Sh.	Eg.	26	0	27	43.8	III.	Ec.	Dis.
	14	4	55.7	I.	Ec.	Re.		16	1	42	I.	Oc.	Dis.		3	30	29.6	III.	Ec.	Re.
6	8	7		I.*	Tr.	In.		4	57	16.0	I.	Ec.	Re.		9	34		II.	Tr.	In.
	8	58		I.*	Sh.	In.		22	50		I.	Tr.	In.		11	53		II.*	Sh.	In.
	10	25		I.*	Tr.	Eg.		23	51		I.	Sh.	In.		12	23		II.	Tr.	Eg.
	11	16		I.*	Sh.	Eg.		17	1	6	IV.	Tr.	In.		14	43		II.	Sh.	Eg.
	20	36		II.	Oc.	Dis.		1	7		I.	Tr.	Eg.		16	26		I.	Oc.	Dis.
7	1	7	18.0	II.	Ec.	Re.		2	9		I.	Sh.	Eg.		19	49	41.4	I.	Ec.	Re.
	5	27		I.	Oc.	Dis.		3	24		IV.	Tr.	Eg.	27	13	35		I.	Tr.	In.
	8	33	36.8	I.*	Ec.	Re.		10	18		IV.*	Sh.	In.		14	44		I.	Sh.	In.
	22	42		III.	Tr.	In.		12	11		II.	Oc.	Dis.		15	52		I.	Tr.	Eg.
8	1	46		III.	Tr.	Eg.		13	4		IV.	Sh.	Eg.		17	2		I.	Sh.	Eg.
	2	11		III.	Sh.	In.		17	3	41.2	II.	Ec.	Re.	28	3	50		II.	Oc.	Dis.
	2	34		I.	Tr.	In.		20	9		I.	Oc.	Dis.		8	59	43.7	II.*	Ec.	Re.
	3	27		I.	Sh.	In.		23	25	58.5	I.	Ec.	Re.		10	53		I.*	Oc.	Dis.
	4	51		I.	Tr.	Eg.		18	10	12	III.	Oc.	Dis.		14	18	24.9	I	Ec.	Re.
	5	21		III.	Sh.	Eg.		17	17		I.	Tr.	In.	29	8	2		I.*	Tr.	In.
	5	45		I.	Sh.	Eg.		18	20		I.	Sh.	In.		9	13		I.*	Sh.	In.
	15	38		II.	Tr.	In.		19	17		III.	Oc.	Re.		9	30		III.*	Tr.	In.
	17	22		IV.	Oc.	Dis.		19	35		I.	Tr.	Eg.		10	20		I.	Tr.	Eg.
	17	25		II.	Sh.	In.		20	28	17.6	III.	Ec.	Dis.		11	31		I.*	Sh.	Eg.
	18	25		II.	Tr.	Eg.		20	38		I.	Sh.	Eg.		12	36		III.	Tr.	Eg.
	19	37		IV.	Oc.	Re.		23	30	2.0	III.	Ec.	Re.		14	12		III.	Sh.	In.
	20	14		II.	Sh.	Eg.		19	7	10	II.	Tr.	In.		17	25		III.	Sh.	Eg.
	23	54		I.	Oc.	Dis.		9	18		II.*	Sh.	In.		22	47		II.	Tr.	In.
9	1	29	11.1	IV.	Ec.	Dis.		9	58		II.*	Tr.	Eg.	30	1	11		II.	Sh.	In.
	3	2	22.4	I.	Ec.	Re.		12	8		II.*	Sh.	Eg.		1	36		II	Tr.	Eg.
	4	5	7.7	IV.	Ec.	Re.		14	36		I.	Oc.	Dis.		4	1		II.	Sh.	Eg.
	21	1		I.	Tr.	In.		17	54	43.1	I.	Ec.	Re.		5	21		I.	Oc.	Dis.
	21	56		I.	Sh.	In.		11	45		I.*	Tr.	In.		8	47	12.1	I.*	Ec.	Re.
	23	18		I.	Tr.	Eg.		12	49		I.	Sh.	In.	31	2	30		I.	Tr.	In.
10	0	13		I.	Sh.	Eg.		14	2		I.	Tr.	Eg.		3	42		I.	Sh.	In.
	9	48		II.*	Oc.	Dis.		15	6		I.	Sh.	Eg.		4	48		I.	Tr.	Eg.
	14	26	16.4	II.	Ec.	Re.		21	1	23	II.	Oc.	Dis.		6	0		I.	Sh.	Eg.
	18	20		I.	Oc.	Dis.		6	22	2.9	II.	Ec.	Re.		17	5		II.	Oc.	Dis.
	21	31	3.7	I.	Ec.	Re.		9	3		I.*	Oc.	Dis.		22	19	6.0	II.	Ec.	Re.
11	12	39		III.*	Oc.	Dis.		12	23	25.9	I.*	Ec.	Re.		23	49		I.	Oc.	Dis.
	15	28		I.	Tr.	In.		22	5	49	III.	Tr.	In.							

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

AUGUST.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.

r
*

III.

d
* r
*

II.

r
*

IV.

d
* r
**Configurations at 10^h 00^m for an Inverting Telescope.*

Day.	West.				East.			
1			4' 3' I'	○ 2'				
2		4' 3'	2'	○ I'				
3	4'		3' I'	○				2'
4	4'			○ I' 2'				3'
5	4'		2' I'	○ 3'				
6	○ I' 4'		2'	○ 3'				
7		4'		○ I' 3'				
8			1' 4'	○ 2'				
9		3' 2'		○ 1' 4'				
10		3' I'		○ 4'				2'
11			3' I' 2'	○ 4'				
12			1' 2'	○ 3'				4'
13	○ I' 2'			○ 3' 4'				
14			1' 2'	○ 2' 3'				4' I'
15			3' 2'	○ 4'				
16		3' 2'		○ 1' 4'				
17		3' I' 4' 2'		○				
18		4' 3'		○ I' 2'				
19	4'		I' 2' 3'	○				
20	4'		2' I' 3'	○				
21	4'			○ 2' 3'				I'
22	4'		1' 3'	○ 2'				
23		4' 3' 2'		○ I'				
24		3' 4' I' 2'		○				
25			3' I' 2'	○ 4'				
26	○ 2'		I' 3' 4'	○				
27		2'		○ I' 3' 4'				
28			I' 2' 3' 4'	○				
29	○ I' 3'			○ 2' 4'				
30		3' 2'		○ I' 4'				
31		3' 1'		○ 4'				

WASHINGTON MEAN TIME.

SEPTEMBER.

d	h	m	s				d	h	m	s				d	h	m	s			
1	3	15	56.3	I.	Ec.	Re.	11	4	20		IV.	Oc.	Re.	20	11	48		II.	Sh.	Eg.
	20	58		I.	Tr.	In.		8	51		II.*	Oc.	Dis.		14	32	18.8	I.	Ec.	Re.
	22	10		I.	Sh.	In.		13	30	23.1	IV.	Ec.	Dis.	21	8	10		I.*	Tr.	In.
	23	16		I.	Tr.	Eg.		14	15	35.1	II.	Ec.	Re.		9	28		I.*	Sh.	In.
	23	32		III.	Oc.	Dis.		14	36		I.	Oc.	Dis.		10	27		I.*	Tr.	Eg.
2	0	28		I.	Sh.	Eg.		16	28	2.5	IV.	Ec.	Re.		11	46		I.	Sh.	Eg.
	2	38		III.	Oc.	Re.		18	8	28.0	I.	Ec.	Re.	22	0	44		II.	Oc.	Dis.
	4	27	11.4	III.	Ec.	Dis.	12	11	47		I.	Tr.	In.		5	27		I.	Oc.	Dis.
	7	30	57.8	III.*	Ec.	Re.		13	4		I.	Sh.	In.		6	13	19.3	II.	Ec.	Re.
	12	1		II.	Tr.	In.		14	4		I.	Tr.	Eg.		9	1	4.5	I.*	Ec.	Re.
	14	29		II.	Sh.	In.		15	22		I.	Sh.	Eg.	23	2	38		I.	Tr.	In.
	14	50		II.	Tr.	Eg.		17	6		III.	Tr.	In.		3	57		I.	Sh.	In.
	17	19		II.	Sh.	Eg.		20	12		III.	Tr.	Eg.		4	56		I.	Tr.	Eg.
	17	22		IV.	Tr.	In.		22	13		III.	Sh.	In.		6	15		I.	Sh.	Eg.
	18	16		I.	Oc.	Dis.	13	1	28		III.	Sh.	Eg.		11	8		III.	Oc.	Dis.
	19	48		IV.	Tr.	Eg.		3	45		II.	Tr.	In.		14	15		III.	Oc.	Re.
	21	44	41.7	I.	Ec.	Re.		6	22		II.	Sh.	In.		16	27	27.7	III.	Ec.	Dis.
3	4	21		IV.	Sh.	In.		6	34		II.	Tr.	Eg.		19	34	11.7	III.	Ec.	Re.
	7	18		IV.*	Sh.	Eg.		9	5		I.*	Oc.	Dis.		19	35		II.	Tr.	In.
	15	26		I.	Tr.	In.		9	12		II.*	Sh.	Eg.		22	14		II.	Sh.	In.
	16	39		I.	Sh.	In.		12	37	15.8	I.	Ec.	Re.		22	23		II.	Tr.	Eg.
	17	44		I.	Tr.	Eg.	14	6	15		I.	Tr.	In.		23	55		I.	Oc.	Dis.
	18	57		I.	Sh.	Eg.		7	33		I.*	Sh.	In.	24	1	6		II.	Sh.	Eg.
4	6	20		II.	Oc.	Dis.		8	33		I.*	Tr.	Eg.		3	29	50.2	I.	Ec.	Re.
	11	37	35.0	II.	Ec.	Re.		9	51		I.*	Sh.	Eg.		21	7		I.	Tr.	In.
	12	44		I.	Oc.	Dis.		22	9		II.	Oc.	Dis.		22	26		I.	Sh.	In.
	16	13	25.6	I.	Ec.	Re.	15	3	33		I.	Oc.	Dis.		23	25		I.	Tr.	Eg.
5	9	54		I.*	Tr.	In.		3	35	8.6	II.	Ec.	Re.	25	0	44		I.	Sh.	Eg.
	11	8		I.*	Sh.	In.		7	6	0.8	I.*	Ec.	Re.		14	2		II.	Oc.	Dis.
	12	12		I.	Tr.	Eg.	16	0	44		I.	Tr.	In.		18	24		I.	Oc.	Dis.
	13	16		III.	Tr.	In.		2	2		I.	Sh.	In.		19	31	54.8	II.	Ec.	Re.
	13	26		I.	Sh.	Eg.		3	1		I.	Tr.	Eg.		21	58	34.9	I.	Ec.	Re.
	16	22		III.	Tr.	Eg.		4	20		I.	Sh.	Eg.	26	15	36		I.	Tr.	In.
	18	12		III.	Sh.	In.		7	11		III.*	Oc.	Dis.		16	55		I.	Sh.	In.
	21	26		III.	Sh.	Eg.		10	18		III.*	Oc.	Re.		17	54		I.	Tr.	Eg.
6	1	15		II.	Tr.	In.		12	26	55.3	III.	Ec.	Dis.		19	13		I.	Sh.	Eg.
	3	46		II.	Sh.	In.		15	32	40.7	III.	Ec.	Re.	27	0	58		III.	Tr.	In.
	4	4		II.	Tr.	Eg.		17	1		II.	Tr.	In.		4	6		III.	Tr.	Eg.
	6	37		II.	Sh.	Eg.		19	39		II.	Sh.	In.		6	13		III.	Sh.	In.
	7	12		I.*	Oc.	Dis.		19	50		II.	Tr.	Eg.		8	51		II.*	Tr.	In.
	10	42	13.1	I.*	Ec.	Re.		22	1		I.	Oc.	Dis.		9	30		III.*	Sh.	Eg.
7	4	22		I.	Tr.	In.		22	30		II.	Sh.	Eg.		11	32		II.	Sh.	In.
	5	37		I.	Sh.	In.	17	1	34	46.6	I.	Ec.	Re.		11	40		II.	Tr.	Eg.
	6	40		I.	Tr.	Eg.		19	13		I.	Tr.	In.		12	53		I.	Oc.	Dis.
	7	55		I.*	Sh.	Eg.		20	30		I.	Sh.	In.		14	23		II.	Sh.	Eg.
	19	35		II.	Oc.	Dis.		21	30		I.	Tr.	Eg.		16	27	22.0	I.	Ec.	Re.
8	0	57	3.3	II.	Ec.	Re.		22	49		I.	Sh.	Eg.		19	30		IV.	Oc.	Dis.
	1	40		I.	Oc.	Dis.	18	11	25		II.	Oc.	Dis.		22	7		IV.	Oc.	Re.
	5	10	57.9	I.	Ec.	Re.		16	30		I.	Oc.	Dis.	28	7	32	4.7	IV.*	Ec.	Dis.
	22	51		I.	Tr.	In.		16	53	42.0	II.	Ec.	Re.		10	5		I.	Tr.	In.
9	0	6		I.	Sh.	In.		20	3	31.2	I.	Ec.	Re.		10	39	16.9	IV.	Ec.	Re.
	1	8		I.	Tr.	Eg.	19	10	36		IV.*	Tr.	In.		11	24		I.	Sh.	In.
	2	24		I.	Sh.	Eg.		13	10		IV.	Tr.	Eg.		12	23		I.	Tr.	Eg.
	3	20		III.	Oc.	Dis.		13	41		I.	Tr.	In.		13	42		I.	Sh.	Eg.
	6	26		III.	Oc.	Re.		14	59		I.	Sh.	In.	29	3	22		II.	Oc.	Dis.
	8	27	1.7	III.*	Ec.	Dis.		15	59		I.	Tr.	Eg.		7	22		I.*	Oc.	Dis.
	11	31	48.1	III.	Ec.	Re.		17	17		I.	Sh.	Eg.		8	51	35.1	II.*	Ec.	Re.
	14	30		II.	Tr.	In.		21	0		III.	Tr.	In.		10	56	7.7	I.	Ec.	Re.
	17	4		II.	Sh.	In.	20	0	7		IV.	Sh.	In.	30	4	34		I.	Tr.	In.
	17	19		II.	Tr.	Eg.		1	32		III.	Tr.	Eg.		5	53		I.	Sh.	In.
	19	55		II.	Sh.	Eg.		2	13		IV.	Sh.	Eg.		6	52		I.*	Tr.	Eg.
	20	8		I.	Oc.	Dis.		5	29		III.	Sh.	Eg.		8	11		I.*	Sh.	Eg.
	23	39	43.8	I.	Ec.	Re.		6	17		II.	Tr.	In.		15	8		III.	Oc.	Dis.
10	17	19		I.	Tr.	In.		8	57		II.*	Sh.	In.		18	16		III.	Oc.	Re.
	18	35		I.	Sh.	In.		9	6		II.*	Tr.	Eg.		20	27	25.9	III.	Ec.	Dis.
	19	36		I.	Tr.	Eg.		10	58		I.	Oc.	Dis.		22	9		II.	Tr.	In.
	20	53		I.	Sh.	Eg.									23	35	7.7	III.	Ec.	Re.
11	1	50		IV.	Oc.	Dis.														





NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

SEPTEMBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.		r *	III.		d * r *
II.		r *	IV.		d * r *

Configurations at 8^h 30^m for an Inverting Telescope.

Day.	West.				East.		
1			3	○	I	2	4
2			I	○	3		
3		2	4	○	I		3
4		4		○		3	2 ●
5	4			○	I	3	2
6	4		3	○			I ●
7	4	3	2	○			
8	4		3	○	I	2	
9		4	I	○	2		3 ●
10		2	4	○	I		3
11			I	○	2	4	3
12				○	I	3	2
13		3	2	○			4
14	○ I	3	2	○			4
15		3		○	I	2	4
16			I	○	2		4
17		2		○	I	3	4
18			I	○		4	3
19				○	4	I	3
20	○ 2		4	○			I
21	○ I	4	3	○			
22	4		3	○	2		I ●
23	4			○	I	3	2
24	4		2	○	I		3
25		4	I	○			3
26		4		○	I	2	
27			3	○			
28		3	2	○	I		4 ●
29		3		○		4	I ● 2 ●
30			3	○	2		4

WASHINGTON MEAN TIME.

OCTOBER.

d	h	m	s	II.	Sh.	In.	d	h	m	s	II.	Sh.	In.	d	h	m	s	III.	Oc.	Re.
1	0	49		II.	Sh.	In.	11	16	42		II.	Sh.	In.	22	6	42		III.	Oc.	Re.
	0	59		II.	Tr.	Eg.		16	45		I.	Oc.	Dis.		7	41		I.	Oc.	Dis.
	1	51		I.	Oc.	Dis.		16	56		II.	Tr.	Eg.		8	26	43.6	III.	Ec.	Dis.
	3	41		II.	Sh.	Eg.		17	32		III.	Sh.	Eg.		8	34		II.	Sh.	In.
	5	24	53.0	I.	Ec.	Re.		19	34		II.	Sh.	Eg.		8	56		II.	Tr.	Eg.
	23	3		I.	Tr.	In.		20	17	26.8	I.	Ec.	Re.		11	9	57.7	I.	Ec.	Re.
2	0	21		I.	Sh.	In.	12	13	59		I.	Tr.	In.		11	27		II.	Sh.	Eg.
	1	21		I.	Tr.	Eg.		15	15		I.	Sh.	In.		11	37	12.8	III.	Ec.	Re.
	2	40		I.	Sh.	Eg.		16	17		I.	Tr.	Eg.		23	37		IV.	Tr.	In.
	16	41		II.	Oc.	Dis.		17	33		I.	Sh.	Eg.		2	31		IV.	Tr.	Eg.
	20	20		I.	Oc.	Dis.	13	8	43		II.	Oc.	Dis.		4	56		I.	Tr.	In.
	22	10	11.3	II.	Ec.	Re.		11	14		I.	Oc.	Dis.		6	8		I.	Sh.	In.
	23	53	37.9	I.	Ec.	Re.		14	8	13.7	II.	Ec.	Re.		7	14		I.	Tr.	Eg.
3	17	32		I.	Tr.	In.		14	46	12.6	I.	Ec.	Re.		8	27		I.	Sh.	Eg.
	18	50		I.	Sh.	In.	14	8	28		I.	Tr.	In.		10	34		IV.	Sh.	In.
	19	50		I.	Tr.	Eg.		9	44		I.	Sh.	In.		14	0		IV.	Sh.	Eg.
	21	9		I.	Sh.	Eg.		10	46		I.	Tr.	Eg.	24	0	47		II.	Oc.	Dis.
4	5	1		III.	Tr.	In.		12	2		I.	Sh.	Eg.		2	11		I.	Oc.	Dis.
	8	10		III.*	Tr.	Eg.		13	59		IV.	Oc.	Dis.		5	38	41.7	I.	Ec.	Re.
	10	13		III.	Sh.	In.		16	48		IV.	Oc.	Re.		6	5	10.2	II.	Ec.	Re.
	11	28		II.	Tr.	In.		23	19		III.	Oc.	Dis.		23	26		I.	Tr.	In.
	13	31		III.	Sh.	Eg.	15	1	34	22.7	IV.	Ec.	Dis.	25	0	37		I.	Sh.	In.
	14	7		II.	Sh.	In.		2	30		III.	Oc.	Re.		1	44		I.	Tr.	Eg.
	14	17		II.	Tr.	Eg.		3	26		II.	Tr.	In.		2	56		I.	Sh.	Eg.
	14	48		I.	Oc.	Dis.		4	27	6.7	III.	Ec.	Dis.		17	31		III.	Tr.	In.
	16	59		II.	Sh.	Eg.		4	50	31.1	IV.	Ec.	Re.		19	27		II.	Tr.	In.
	18	22	24.9	I.	Ec.	Re.		5	44		I.	Oc.	Dis.		20	40		I.	Oc.	Dis.
5	12	1		I.	Tr.	In.		5	59		II.*	Sh.	In.		20	43		III.	Tr.	Eg.
	13	19		I.	Sh.	In.		6	15		II.*	Tr.	Eg.		21	52		II.	Sh.	In.
	14	19		I.	Tr.	Eg.		7	36	41.3	III.*	Ec.	Re.		22	15		III.	Sh.	In.
	15	38		I.	Sh.	Eg.		8	52		II.*	Sh.	Eg.		22	17		II.	Tr.	Eg.
6	4	44		IV.	Tr.	In.		9	14	57.6	I.	Ec.	Re.	26	0	7	27.3	I.	Ec.	Re.
	6	1		II.	Oc.	Dis.	16	2	58		I.	Tr.	In.		0	44		II.	Sh.	Eg.
	7	26		IV.*	Tr.	Eg.		4	13		I.	Sh.	In.		1	36		III.	Sh.	Eg.
	9	18		I.*	Oc.	Dis.		5	15		I.	Tr.	Eg.		17	56		I.	Tr.	In.
	11	29	53.6	II.	Ec.	Re.		6	31		I.*	Sh.	Eg.		19	6		I.	Sh.	In.
	12	51	10.7	I.	Ec.	Re.		22	4		II.	Oc.	Dis.		20	14		I.	Tr.	Eg.
	16	29		IV.	Sh.	In.	17	0	13		I.	Oc.	Dis.		21	25		I.	Sh.	Eg.
	19	46		IV.	Sh.	Eg.		3	26	50.3	II.	Ec.	Re.	27	14	11		II.	Oc.	Dis.
7	6	31		I.*	Tr.	In.		3	43	42.0	I.	Ec.	Re.		15	10		I.	Oc.	Dis.
	7	48		I.*	Sh.	In.		21	27		I.	Tr.	In.		18	36	12.5	I.	Ec.	Re.
	8	48		I.*	Tr.	Eg.		22	42		I.	Sh.	In.		19	24	53.4	II.	Ec.	Re.
	10	7		I.	Sh.	Eg.		23	45		I.	Tr.	Eg.		12	25		I.	Tr.	In.
	19	12		III.	Oc.	Dis.	18	1	0		I.	Sh.	Eg.		13	35		I.	Sh.	In.
	22	21		III.	Oc.	Re.		13	18		III.	Tr.	In.		14	43		I.	Tr.	Eg.
8	0	27	28.6	III.	Ec.	Dis.		16	29		III.	Tr.	Eg.		15	54		I.	Sh.	Eg.
	0	47		II.	Tr.	In.		16	46		II.	Tr.	In.		9	40		III.*	Oc.	Dis.
	3	24		II.	Sh.	In.		18	15		III.	Sh.	In.	29	7	45		II.	Tr.	In.
	3	36	7.4	III.	Ec.	Re.		18	42		I.	Oc.	Dis.		8	48		I.	Oc.	Dis.
	3	37		II.	Tr.	Eg.		19	17		II.	Sh.	In.		9	40		I.	Oc.	Dis.
	3	47		I.	Oc.	Dis.		19	35		II.	Tr.	Eg.		10	57		III.	Oc.	Re.
	6	16		II.*	Sh.	Eg.		21	34		III.	Sh.	Eg.		11	9		II.	Sh.	In.
	7	19	55.9	I.*	Ec.	Re.		22	9		II.	Sh.	Eg.		11	39		II.	Tr.	Eg.
9	1	0		I.	Tr.	In.		22	12	28.0	I.	Ec.	Re.		12	26	41.0	III.	Ec.	Dis.
	2	17		I.	Sh.	In.	19	15	57		I.	Tr.	In.		13	4	56.2	I.	Ec.	Re.
	3	18		I.	Tr.	Eg.		17	11		I.	Sh.	In.		14	2		II.	Sh.	Eg.
	4	35		I.	Sh.	Eg.		18	15		I.	Tr.	Eg.		15	38	4.0	III.	Ec.	Re.
	19	21		II.	Oc.	Dis.		19	29		I.	Sh.	Eg.	30	6	55		I.*	Tr.	In.
	22	16		I.	Oc.	Dis.		20	11	26	II.	Oc.	Dis.		8	4		I.*	Sh.	In.
10	0	48	30.3	II.	Ec.	Re.		13	12		I.	Oc.	Dis.		9	13		I.	Tr.	Eg.
	1	48	40.4	I.	Ec.	Re.		16	41	13.6	I.	Ec.	Re.		10	23		I.	Sh.	Eg.
	19	29		I.	Tr.	In.		16	46	34.2	II.	Ec.	Re.	31	3	33		II.	Oc.	Dis.
	20	46		I.	Sh.	In.		10	26		I.	Tr.	In.		4	9		I.	Oc.	Dis.
	21	47		I.	Tr.	Eg.		11	30		I.	Sh.	In.		7	33	39.7	I.*	Ec.	Re.
	23	4		I.	Sh.	Eg.		12	44		I.	Tr.	Eg.		8	43	28.2	II.	Ec.	Re.
11	9	7		III.*	Tr.	In.		13	58		I.	Sh.	Eg.		9	13		IV.	Oc.	Dis.
	12	17		III.	Tr.	Eg.		22	3	30	III.	Oc.	Dis.		12	12		IV.	Oc.	Re.
	14	6		II.	Tr.	In.		6	6		II.*	Tr.	In.		19	37	11.2	IV.	Ec.	Dis.
	14	13		III.	Sh.	In.									23	1	41.0	IV.	Ec.	Re.





NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

OCTOBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.		r *	III.		d * r *
II.		r *	IV.		d * r *

Configurations at 7^h 00^m for an Inverting Telescope.

Day.	West.			East.		
I		2°	○	'1	'3	'4
2		'21°	○		'3	4°
3			○	'1	'2 3°	4°
4	○ 3°		'1	○	2°	4°
5		3° 2°	○	'1	4°	
6	○ 4°	'3	'1	○		'2 ●
7	○ 1°	4° '3	○		2°	
8		4° 2°	○	'3		'1 ●
9	4°	'2 '1	○		'3	
10	4°		○	'1 '2	3°	
11	'4	'1	○	3° 2°		
12	'4	3° 2°	○	'1		
13		'3 '4	'1 '2	○		
14		'3 '4	○ '1		'2	
15		2°	○		'4	'1 ● '3 ●
16		'2 '1	○		'3 '4	
17			○	'2	3°	'4
18		'1	○	3° 2°		'4
19		3°	○	'1		4°
20	3°	'1 '2	○			4°
21		'3	○	'1	'2 4°	
22	○ 2°		'1 ○ '3		4°	
23	○ 1°	'2 4°	○		'3	
24		4°	○	'2	3°	
25	4°	'1	○	3° 2°		
26	4°	3°	○	'1		
27	'4	3°	○			
28	'4	'3	○	'1	'2	
29		4°	'1 '3 ○ 2°			
30	○ 1°	'4 2°	○		'3	'1 ● '2 ●
31			'4 ○		3°	

WASHINGTON MEAN TIME.

NOVEMBER.

d	h	m	s				d	h	m	s				d	h	m	s			
1	1	25		I.	Tr.	In.	10	22	26	4.3	I.	Ec.	Re.	20	16	9		I.	Sh.	Eg.
2	33			I.	Sh.	In.	11	0	41	20.2	II.	Ec.	Re.	21	10	9		I.	Oc.	Dis.
3	43			I.	Tr.	Eg.		16	25		I.	Tr.	In.		11	58		II.	Oc.	Dis.
4	52			I.	Sh.	Eg.		17	26		I.	Sh.	In.		13	18	19.7	I.	Ec.	Re.
21	47			III.	Tr.	In.		18	43		I.	Tr.	Eg.		16	37	53.5	II.	Ec.	Re.
22	10			II.	Tr.	In.		19	45		I.	Sh.	Eg.	22	7	27		I.	Tr.	In.
22	39			I.	Oc.	Dis.	12	13	38		I.	Oc.	Dis.		8	19		I.	Sh.	In.
2	0	27		II.	Sh.	In.		14	17		II.	Tr.	In.		9	45		I.	Tr.	Eg.
1	0			III.	Tr.	Eg.		16	19		II.	Sh.	In.		10	38		I.	Sh.	Eg.
1	1			II.	Tr.	Eg.		16	22		III.	Oc.	Dis.	23	4	39		I.	Oc.	Dis.
2	2	24.4		I.	Ec.	Re.		16	54	46.7	I.	Ec.	Re.		6	26		II.*	Tr.	In.
2	16			III.	Sh.	In.		17	8		II.	Tr.	Eg.		7	47	1.7	I.	Ec.	Re.
3	20			II.	Sh.	Eg.		19	12		II.	Sh.	Eg.		8	12		II.	Sh.	In.
5	37			III.*	Sh.	Eg.		19	37		III.	Oc.	Re.		9	18		II.	Tr.	Eg.
19	55			I.	Tr.	In.		20	27	6.7	III.	Ec.	Dis.		10	50		III.	Tr.	In.
21	2			I.	Sh.	In.		23	40	14.7	III.	Ec.	Re.		11	5		II.	Sh.	Eg.
22	13			I.	Tr.	Eg.	13	10	55		I.	Tr.	In.		14	7		III.	Tr.	Eg.
23	20			I.	Sh.	Eg.		11	55		I.	Sh.	In.		14	16		III.	Sh.	In.
3	16	57		II.	Oc.	Dis.		13	14		I.	Tr.	Eg.		17	40		III.	Sh.	Eg.
17	9			I.	Oc.	Dis.		14	14		I.	Sh.	Eg.	24	1	57		I.	Tr.	In.
20	31	9.5		I.	Ec.	Re.	14	8	8		I.	Oc.	Dis.		2	48		I.	Sh.	In.
22	3	9.3		II.	Ec.	Re.		9	8		II.	Oc.	Dis.		4	15		I.	Tr.	Eg.
4	14	25		I.	Tr.	In.		11	23	29.3	I.	Ec.	Re.		5	7		I.	Sh.	Eg.
15	31			I.	Sh.	In.		13	59	51.0	II.	Ec.	Re.	25	1	23		I.	Oc.	Dis.
16	43			I.	Tr.	Eg.	15	5	26		I.*	Tr.	In.		2	15	45.6	II.	Oc.	Dis.
17	49			I.	Sh.	Eg.		6	24		I.*	Sh.	In.		5	57	23.0	I.	Ec.	Re.
5	11	32		II.	Tr.	In.		7	44		I.	Tr.	Eg.		5	57	23.0	II.*	Ec.	Re.
11	39			I.	Oc.	Dis.		8	43		I.	Sh.	Eg.		15	13		IV.	Tr.	In.
12	2			III.	Oc.	Dis.	16	2	38		I.	Oc.	Dis.		18	31		IV.	Tr.	Eg.
13	44			II.	Sh.	In.		3	40		II.	Tr.	In.		20	27		I.	Tr.	In.
14	23			II.	Tr.	Eg.		5	37		II.*	Sh.	In.		21	17		I.	Sh.	In.
14	59	52.7		I.	Ec.	Re.		5	52	12.2	I.*	Ec.	Re.		22	45		IV.	Sh.	In.
15	16			III.	Oc.	Re.		6	26		III.*	Tr.	In.		22	45		I.	Tr.	Eg.
16	26	36.3		III.	Ec.	Dis.		6	31		II.*	Tr.	Eg.		23	36		I.	Sh.	Eg.
16	37			II.	Sh.	Eg.		8	30		II.	Sh.	Eg.	26	2	27		IV.	Sh.	Eg.
19	38	52.3		III.	Ec.	Re.		9	42		III.	Tr.	Eg.		17	39		I.	Oc.	Dis.
6	8	55		I.	Tr.	In.		10	16		III.	Sh.	In.		19	50		II.	Tr.	In.
9	59			I.	Sh.	In.		13	39		III.	Sh.	Eg.		20	44	26.5	I.	Ec.	Re.
11	13			I.	Tr.	Eg.		23	56		I.	Tr.	In.		21	29		II.	Sh.	In.
12	18			I.	Sh.	Eg.	17	0	53		I.	Sh.	In.		22	42		II.	Tr.	Eg.
7	6	9		I.*	Oc.	Dis.		2	14		I.	Tr.	Eg.	27	0	23		II.	Sh.	Eg.
6	20			II.*	Oc.	Dis.		3	11		I.	Sh.	Eg.		1	7		III.	Oc.	Dis.
9	28	35.9		I.	Ec.	Re.		4	59		IV.	Oc.	Dis.		4	26		III.	Oc.	Re.
11	21	42.2		II.	Ec.	Re.		8	11		IV.	Oc.	Re.		4	26	53.0	III.	Ec.	Dis.
8	3	25		I.	Tr.	In.		13	40	0.7	IV.	Ec.	Dis.		7	41	42.6	III.	Ec.	Re.
4	28			I.	Sh.	In.		17	12	18.0	IV.	Ec.	Re.		14	57		I.	Tr.	In.
5	43			I.*	Tr.	Eg.		21	9		I.	Oc.	Dis.		15	46		I.	Sh.	In.
6	47			I.*	Sh.	Eg.		22	33		II.	Oc.	Dis.		17	16		I.	Tr.	Eg.
19	10			IV.	Tr.	In.	18	0	20	56.3	I.	Ec.	Re.		18	5		I.	Sh.	Eg.
22	15			IV.	Tr.	Eg.		3	19	25.5	II.	Ec.	Re.	28	12	9		I.	Oc.	Dis.
9	0	38		I.	Oc.	Dis.		18	26		I.	Tr.	In.		14	48		II.	Oc.	Dis.
0	54			II.	Tr.	In.		19	21		I.	Sh.	In.		15	13	8.1	I.	Ec.	Re.
2	6			III.	Tr.	In.		20	44		I.	Tr.	Eg.		19	15	49.3	II.	Ec.	Re.
3	2			II.	Sh.	In.		21	40		I.	Sh.	Eg.	29	9	28		I.	Tr.	In.
3	45			II.	Tr.	Eg.	19	15	39		I.	Oc.	Dis.		10	15		I.	Sh.	In.
3	57	19.8		I.	Ec.	Re.		17	3		II.	Tr.	In.		11	46		I.	Tr.	Eg.
4	39			IV.	Sh.	In.		18	49	37.7	I.	Ec.	Re.		12	34		I.	Sh.	Eg.
5	20			III.	Tr.	Eg.		18	54		II.	Sh.	In.	30	6	40		I.	Oc.	Dis.
5	55			II.*	Sh.	Eg.		19	55		II.	Tr.	Eg.		9	14		II.	Tr.	In.
6	16			III.*	Sh.	In.		20	44		III.	Oc.	Dis.		9	41	49.0	I.	Ec.	Re.
8	14			IV.	Sh.	Eg.		21	48		II.	Sh.	Eg.		10	47		II.	Sh.	In.
9	38			III.	Sh.	Eg.	20	0	0		III.	Oc.	Re.		12	6		II.	Tr.	Eg.
21	55			I.	Tr.	In.		0	26	59.8	III.	Ec.	Dis.		13	41		II.	Sh.	Eg.
22	57			I.	Sh.	In.		3	40	59.0	III.	Ec.	Re.		15	16		III.	Tr.	In.
10	0	13		I.	Tr.	Eg.		12	56		I.	Tr.	In.		18	17		III.	Sh.	In.
1	16			I.	Sh.	Eg.		13	50		I.	Sh.	In.		18	34		III.	Tr.	Eg.
19	8			I.	Oc.	Dis.		15	15		I.	Tr.	Eg.		21	42		III.	Sh.	Eg.
19	45			II.	Oc.	Dis.														





NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

NOVEMBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.		r *	III.		d * r *
II.		r *	IV.		d * r *

Configurations at 6^h 00^m for an Inverting Telescope.

Day.	West.			East.		
I			I' ○			
2			○	I' 4		
3	3'	2' 1'	○			4
4	3		○	I' 2		4
5		I' 3	○	2'		4'
6		2	○	I' 3		4'
7			○			3 4
8			I' ○	4' 2' 3'		
9			4' 2' 3' ○	I'		
10		4' 2' I'	○			
11	4'	3	○			
12	4'		○	2'		
13	4	2'	○	I' 3		
14	4		○			3
15	○ I'	4	○	2' 3'		
16	○ 2'	4	○			
17		3' 2' I.	○			4 ●
18		3	○	2' I' 4		
19		3 I'	○	2'		4
20		2'	○			4
21			○			3 4
22			○ I'	2' 3'		4'
23			○ 2' 3'			4' I ●
24			○			4'
25	3'		○ 2' 4'			
26		3 1' 4'	○	2'		
27	4'	4' 2'	○	I'		3 ●
28	4'		○			3
29	4'		○	I' 2' 3'		
30	4		I' ○	2' 3'		

WASHINGTON MEAN TIME.

DECEMBER.

d	h	m	s				d	h	m	s				d	h	m	s				
1	3	58		I.	Tr.	In.	7	13	22		II.	Sh.	In.	13	13	31		I.	Tr.	In.	
	4	43		I.	Sh.	In.		14	55		II.	Tr.	Eg.		14	5		I.	Sh.	In.	
	6	17		I.*	Tr.	Eg.		16	16		II.	Sh.	Eg.		15	50		I.	Tr.	Eg.	
	7	2		I.	Sh.	Eg.		19	42		III.	Tr.	In.		16	24		I.	Sh.	Eg.	
2	1	10		I.	Oc.	Dis.		22	17		III.	Sh.	In.	14	10	42		I.	Oc.	Dis.	
	4	10	32.3	I.	Ec.	Re.		23	2		III.	Tr.	Eg.		13	31	13.8	I.	Ec.	Re.	
	4	13		II.	Oc.	Dis.	8	1	43		III.	Sh.	Eg.		14	51		II.	Tr.	In.	
	8	35	12.7	II.	Ec.	Re.		6	0		I.*	Tr.	In.		15	57		II.	Sh.	In.	
	22	29		I.	Tr.	In.		6	39		I.	Sh.	In.		17	44		II.	Tr.	Eg.	
	23	12		I.	Sh.	In.		8	19		I.	Tr.	Eg.		18	51		II.	Sh.	Eg.	
3	0	47		I.	Tr.	Eg.		8	58		I.	Sh.	Eg.	15	0	9		III.	Tr.	In.	
	1	31		I.	Sh.	Eg.	9	3	11		I.	Oc.	Dis.		2	17		III.	Sh.	In.	
	19	40		I.	Oc.	Dis.		6	5	15.7	I.	Ec.	Re.		3	31		III.	Tr.	Eg.	
	22	38		II.	Tr.	In.		7	4		II.	Oc.	Dis.		5	44		III.*	Sh.	Eg.	
	22	39	12.0	I.	Ec.	Re.		11	12	52.8	II.	Ec.	Re.		8	2		I.	Tr.	In.	
4	0	4		II.	Sh.	In.	10	0	30		I.	Tr.	In.		8	34		I.	Sh.	In.	
	1	12		IV.	Oc.	Dis.		1	7		I.	Sh.	In.		10	21		I.	Tr.	Eg.	
	1	30		II.	Tr.	Eg.		2	49		I.	Tr.	Eg.		10	53		I.	Sh.	Eg.	
	2	58		II.	Sh.	Eg.		3	26		I.	Sh.	Eg.	16	5	12		I.*	Oc.	Dis.	
	4	37		IV.	Oc.	Re.		21	41		I.	Oc.	Dis.		7	59	56.0	I.	Ec.	Re.	
	5	33		III.	Oc.	Dis.	11	0	33	54.5	I.	Ec.	Re.		9	56		II.	Oc.	Dis.	
	7	43	7.1	IV.	Ec.	Dis.		1	27		II.	Tr.	In.		13	50	22.0	II.	Ec.	Re.	
	11	22	41.3	IV.	Ec.	Re.		2	39		II.	Sh.	In.	17	2	32		I.	Tr.	In.	
	11	41	59.5	III.	Ec.	Re.		4	19		II.	Tr.	Eg.		3	2		I.	Sh.	In.	
	16	59		I.	Tr.	In.		5	33		II.*	Sh.	Eg.		4	51		I.	Tr.	Eg.	
	17	41		I.	Sh.	In.		9	59		III.	Oc.	Dis.		5	22		I.*	Sh.	Eg.	
	19	18		I.	Tr.	Eg.		15	42	13.0	III.	Ec.	Re.		23	43		I.	Oc.	Dis.	
	20	0		I.	Sh.	Eg.		19	1		I.	Tr.	In.		18	2	28	33.9	I.	Ec.	Re.
5	14	10		I.	Oc.	Dis.		19	36		I.	Sh.	In.		4	16		II.	Tr.	In.	
	17	7	53.0	I.	Ec.	Re.		21	20		I.	Tr.	Eg.		5	14		II.*	Sh.	In.	
	17	38		II.	Oc.	Dis.		21	55		I.	Sh.	Eg.		7	9		II.	Tr.	Eg.	
	21	53	34.7	II.	Ec.	Re.	12	11	38		IV.	Tr.	In.		8	9		II.	Sh.	Eg.	
6	11	30		I.	Tr.	In.		15	9		IV.	Tr.	Eg.		14	27		III.	Oc.	Dis.	
	12	10		I.	Sh.	In.		16	12		I.	Oc.	Dis.		19	42	53.1	III.	Ec.	Re.	
	13	48		I.	Tr.	Eg.		16	50		IV.	Sh.	In.		21	3		I.	Tr.	In.	
	14	29		I.	Sh.	Eg.		19	2	34.8	I.	Ec.	Re.		21	31		I.	Sh.	In.	
7	8	41		I.	Oc.	Dis.		20	29		II.	Oc.	Dis.		23	22		I.	Tr.	Eg.	
	11	36	33.0	I.	Ec.	Re.		20	40		IV.	Sh.	Eg.		23	50		I.	Sh.	Eg.	
	12	2		II.	Tr.	In.	13	0	31	11.0	II.	Ec.	Re.								

THE SATELLITES OF JUPITER

ARE NOT VISIBLE THIS YEAR AFTER DECEMBER 18,

JUPITER BEING TOO NEAR TO THE SUN.





NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.

Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

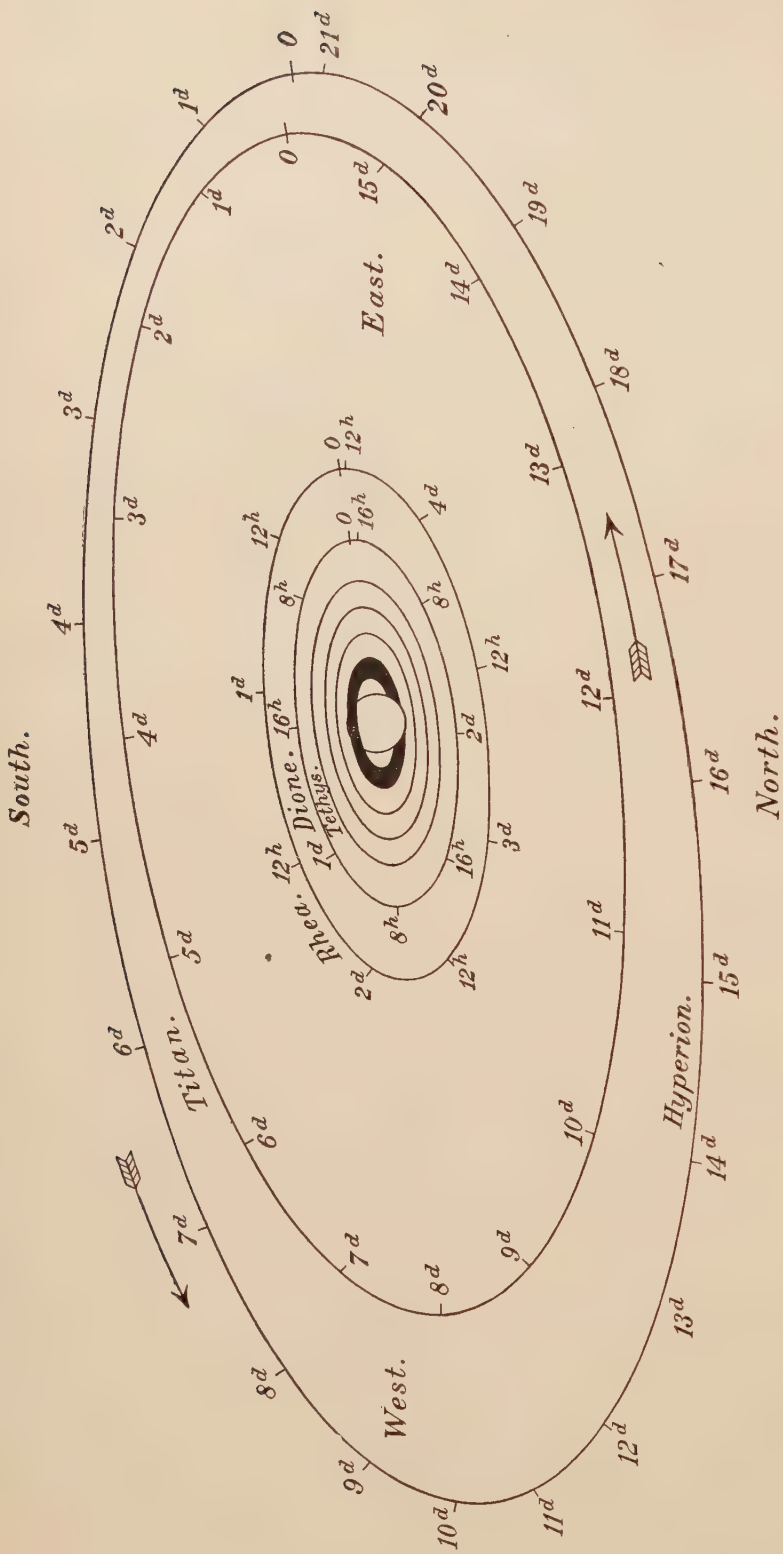
DECEMBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.		III.	
II.		IV.	

Configurations at 5^h 30^m for an Inverting Telescope.

Day.	West.					East.			
1	○	1°	4°			2°	3°	○	
2			4°	3°		○	1°		2° ●
3				3°	4°	1°	○		2°
4					2°	3°	○	4°	1°
5				2°	1°	○		4°	3°
6						○	1°	2°	3° 4°
7					1°	○	2°	3°	4°
8				2°	3°	○	1°		4°
9			3°		2°	○			4° 1° ●
10			3°		1°	○		2°	4°
11					32°	○	1°	4°	
12				2°	1°	○	4°	3°	
13					4°	○	1°		3°
14			4°		1°	○	2°	3°	
15		4°			2°	3°	○	1°	
16	4°			3°		2°	○		1° ●
17	4°		3°			1°	○	2°	
18	○	2°	4°		3°		○	1°	



NAMES OF THE

SATELLITES.

- I. Mimas.
- II. Enceladus.
- III. Tethys.
- IV. Dione.
- V. Rhea.
- VI. Titan.
- VII. Hyperion.
- VIII. Iapetus.

MEAN SYNODIC

PERIODS.

	d	h
I.	0	22.6
II.	1	8.9
III.	1	21.3
IV.	2	17.7
V.	4	12.5
VI.	15	23.3
VII.	21	7.6
VIII.	79	22.1

APPARENT ORBITS OF THE SEVEN INNER SATELLITES OF SATURN,

AT OPPOSITION IN 1901,

AS SEEN IN AN INVERTING TELESCOPE.

WASHINGTON MEAN TIME OF GREATEST ELONGATION, ETC.

In the diagram on the preceding page, the points of the orbits marked "0" are those of the eastern elongations, as seen in an inverting telescope. The times of these elongations may be found from the following tables, and the apparent position of a satellite at any other time may be marked on the diagram by setting off on the proper orbit the elapsed interval in days and hours since the last eastern elongation. The orbits of the five inner satellites are regarded as circular, and the time of any elongation not given in the tables may be readily found from those given by adding or subtracting the proper multiple of the mean synodic period. Mimas can be seen only within a few hours of each elongation, and the time of every elongation visible at Washington is given. For the three outer satellites the eccentricity is taken into account, and the times both of the elongations and of the conjunctions are given. The following abbreviations are used in the tables:—

- E., East Elongation,
I., Inferior Conjunction (south of planet),
W., West Elongation,
S., Superior Conjunction (north of planet).

MIMAS.

Times of Greatest Elongations Visible at Washington.

Apr. d h 4 17.0 E. 5 15.6 E. 6 14.2 E. 13 15.8 W. 14 14.5 W.	May d h 18 12.6 W. 19 11.2 W. 24 15.6 E. 25 14.2 E. 26 12.8 E.	June d h 19 13.5 W. 20 12.1 W. 21 10.7 W. 22 9.3 W. 25 16.5 E.	July d h 14 12.8 E. 15 11.4 E. 16 10.0 E. 17 8.6 E. 21 14.4 W.	Aug. d h 11 7.9 W. 16 12.3 E. 17 10.9 E. 18 9.5 E. 19 8.2 E.	Sept. d h 20 9.2 E. 21 7.8 E. 22 6.4 E. 28 9.5 W. 29 8.1 W.
15 13.1 W. 21 16.1 E. 22 14.7 E. 23 13.3 E. 29 16.3 W.	June d h 27 11.4 E. 1 15.8 W. 2 14.4 W. 3 13.1 W. 4 11.7 W.	26 15.1 E. 27 13.7 E. 28 12.3 E. 29 10.9 E. 30 9.6 E.	22 13.0 W. 23 11.6 W. 24 10.2 W. 25 8.8 W. 29 14.6 E.	24 12.6 W. 25 11.2 W. 26 9.8 W. 27 8.4 W. 28 7.0 W.	Oct. d h 6 9.8 E. 7 8.4 E. 8 7.0 E. 15 8.7 W.
May d h 30 15.0 W. 1 13.6 W. 2 12.2 W. 7 16.6 E. 8 15.2 E.	5 10.3 W. 9 16.0 E. 10 14.7 E. 11 13.3 E. 12 11.9 E.	July d h 1 8.2 E. 4 15.3 W. 5 13.9 W. 6 12.6 W. 7 11.2 W.	30 13.2 E. 31 11.8 E. Aug. 1 10.4 E. 2 9.1 E. 3 7.7 E.	Sept. d h 2 11.4 E. 3 10.0 E. 4 8.7 E. 5 7.3 E. 10 11.7 W.	16 7.3 W. 17 6.0 W. 23 9.0 E. 24 7.6 E. 25 6.3 E.
9 13.8 E. 10 12.4 E. 16 15.4 W. 17 14.0 W.	13 10.5 E. 14 9.1 E. 17 16.3 W. 18 14.9 W.	8 9.8 W. 9 8.4 W. 12 15.5 E. 13 14.2 E.	7 13.4 W. 8 12.1 W. 9 10.7 W. 10 9.3 W.	11 10.3 W. 12 8.9 W. 13 7.5 W. 19 10.6 E.	Nov. d h 1 8.0 W. 2 6.6 W. 10 6.9 E. 11 5.5 E.

ENCELADUS.

Mar. d h 26 0.0 E. 27 8.8 E. 28 17.7 E. 30 2.6 E. 31 11.5 E.	Apr. d h 8 16.8 E. 10 1.7 E. 11 10.6 E. 12 19.5 E. 14 4.4 E.	Apr. d h 22 9.7 E. 23 18.6 E. 25 3.4 E. 26 12.3 E. 27 21.2 E.	May d h 6 2.5 E. 7 11.4 E. 8 20.2 E. 10 5.1 E. 11 14.0 E.	May d h 19 19.3 E. 21 4.2 E. 22 13.0 E. 23 21.9 E. 25 6.8 E.	June d h 2 12.0 E. 3 20.9 E. 5 5.8 E. 6 14.7 E. 7 23.6 E.
Apr. d h 1 20.4 E. 3 5.3 E. 4 14.2 E. 5 23.0 E. 7 7.9 E.	15 13.2 E. 16 22.1 E. 18 7.0 E. 19 15.9 E. 21 0.8 E.	29 6.1 E. 30 15.0 E. May 1 23.8 E. 3 8.7 E. 4 17.6 E.	12 22.9 E. 14 7.8 E. 15 16.6 E. 17 1.5 E. 18 10.4 E.	26 15.7 E. 28 0.5 E. 29 9.4 E. 30 18.3 E. June 1 3.2 E.	9 8.4 E. 10 17.3 E. 12 2.2 E. 13 11.0 E. 14 19.9 E.

WASHINGTON MEAN TIME OF GREATEST ELONGATION.

ENCELADUS—(Continued).

June	d h	July	d h	July	d h	Aug.	d h	Sept.	d h	Sept.	d h
16	4.8 E.	6	17.9 E.	27	7.1 E.	16	20.3 E.	6	9.5 E.	26	22.9 E.
17	13.7 E.	8	2.8 E.	28	16.0 E.	18	5.2 E.	7	18.4 E.	28	7.8 E.
18	22.6 E.	9	11.7 E.	30	0.8 E.	19	14.0 E.	9	3.3 E.	29	16.6 E.
20	7.4 E.	10	20.6 E.	31	9.7 E.	20	22.9 E.	10	12.2 E.	Oct.	1 1.5 E.
21	16.3 E.	12	5.4 E.	Aug.	1 18.6 E.	22	7.8 E.	11	21.1 E.	2	10.4 E.
23	1.2 E.	13	14.3 E.	3	3.5 E.	23	16.7 E.	13	6.0 E.	3	19.3 E.
24	10.0 E.	14	23.2 E.	4	12.4 E.	25	1.6 E.	14	14.8 E.	5	4.2 E.
25	18.9 E.	16	8.1 E.	5	21.2 E.	26	10.5 E.	15	23.7 E.	6	13.1 E.
27	3.8 E.	17	16.9 E.	7	6.1 E.	27	19.3 E.	17	8.6 E.	7	22.0 E.
28	12.7 E.	19	1.8 E.	8	15.0 E.	29	4.2 E.	18	17.5 E.	9	6.9 E.
29	21.6 E.	20	10.7 E.	9	23.9 E.	30	13.1 E.	20	2.4 E.	10	15.8 E.
July	1 6.4 E.	21	19.6 E.	11	8.8 E.	31	22.0 E.	21	11.3 E.	12	0.7 E.
2	15.3 E.	23	4.4 E.	12	17.6 E.	Sept.	2 6.9 E.	22	20.2 E.	13	9.6 E.
4	0.2 E.	24	13.3 E.	14	2.5 E.	3	15.8 E.	24	5.1 E.	14	18.5 E.
5	9.0 E.	25	22.2 E.	15	11.4 E.	5	0.6 E.	25	14.0 E.	16	3.4 E.

TETHYS.

Mar.	d h	Apr.	d h	June	d h	July	d h	Aug.	d h	Sept.	d h
27	2.8 E.	30	2.3 E.	3	1.6 E.	7	0.8 E.	10	0.1 E.	12	23.5 E.
29	0.1 E.	May	1 23.6 E.	4	22.9 E.	8	22.1 E.	11	21.4 E.	14	20.9 E.
30	21.4 E.	3	20.9 E.	6	20.2 E.	10	19.4 E.	13	18.7 E.	16	18.2 E.
Apr.	1 18.7 E.	5	18.2 E.	8	17.5 E.	12	16.7 E.	15	16.0 E.	18	15.5 E.
3	16.0 E.	7	15.5 E.	10	14.8 E.	14	14.0 E.	17	13.3 E.	20	12.8 E.
5	13.3 E.	9	12.8 E.	12	12.1 E.	16	11.3 E.	19	10.6 E.	22	10.1 E.
7	10.6 E.	11	10.1 E.	14	9.4 E.	18	8.6 E.	21	7.9 E.	24	7.4 E.
9	8.0 E.	13	7.4 E.	16	6.7 E.	20	5.9 E.	23	5.2 E.	26	4.8 E.
11	5.3 E.	15	4.7 E.	18	4.0 E.	22	3.2 E.	25	2.5 E.	28	2.1 E.
13	2.6 E.	17	2.0 E.	20	1.2 E.	24	0.4 E.	26	23.8 E.	29	23.4 E.
14	23.9 E.	18	23.3 E.	21	22.5 E.	25	21.7 E.	28	21.1 E.	Oct.	1 20.7 E.
16	21.2 E.	20	20.6 E.	23	19.8 E.	27	19.0 E.	30	18.4 E.	3	18.0 E.
18	18.5 E.	22	17.9 E.	25	17.1 E.	29	16.3 E.	Sept.	1 15.7 E.	5	15.3 E.
20	15.8 E.	24	15.2 E.	27	14.4 E.	31	13.6 E.	3	13.0 E.	7	12.7 E.
22	13.1 E.	26	12.5 E.	29	11.7 E.	Aug.	2 10.9 E.	5	10.3 E.	9	10.0 E.
24	10.4 E.	28	9.8 E.	July	1 9.0 E.	4	8.2 E.	7	7.6 E.	11	7.3 E.
26	7.7 E.	30	7.0 E.	3	6.3 E.	6	5.5 E.	9	4.9 E.	13	4.6 E.
28	5.0 E.	June	1 4.3 E.	5	3.6 E.	8	2.8 E.	11	2.2 E.	15	2.0 E.

DIONE.

Mar.	d h	May	d h	June	d h	July	d h	Aug.	d h	Sept.	d h
31	14.0 E.	3	10.3 E.	5	6.2 E.	8	2.0 E.	9	21.9 E.	11	18.0 E.
Apr.	3 7.7 E.	6	4.0 E.	7	23.9 E.	10	19.7 E.	12	15.5 E.	14	11.7 E.
6	1.4 E.	8	21.6 E.	10	17.5 E.	13	13.3 E.	15	9.2 E.	17	5.4 E.
8	19.1 E.	11	15.3 E.	13	11.2 E.	16	7.0 E.	18	2.9 E.	19	23.1 E.
11	12.8 E.	14	9.0 E.	16	4.8 E.	19	0.6 E.	20	20.5 E.	22	16.8 E.
14	6.5 E.	17	2.6 E.	18	22.5 E.	21	18.3 E.	23	14.2 E.	25	10.5 E.
17	0.2 E.	19	20.3 E.	21	16.1 E.	24	11.9 E.	26	7.9 E.	28	4.2 E.
19	17.9 E.	22	14.0 E.	24	9.8 E.	27	5.6 E.	29	1.6 E.	30	21.9 E.
22	11.6 E.	25	7.6 E.	27	3.4 E.	29	23.2 E.	31	19.2 E.	Oct.	3 15.6 E.
25	5.3 E.	28	1.3 E.	29	21.1 E.	Aug.	1 16.9 E.	Sept.	3 12.9 E.	6	9.3 E.
27	23.0 E.	30	18.9 E.	July	2 14.7 E.	4	10.5 E.	6	6.6 E.	9	3.0 E.
30	16.6 E.	June	2 12.6 E.	5	8.4 E.	7	4.2 E.	9	0.3 E.	11	20.7 E.

RHEA.			TITAN.			HYPERION.					
d	h		d	h		d	h				
Mar. 31	1.5	E	July 8	9.6	E.	Apr. 13.5	E.	July 7.6	W.		
Apr. 4	14.0	E.	12	21.0	E.	18.2	I.	13.6	S.		
9	2.4	E	17	10.3	E.	20	1.5	W.	18.3	E	
13	14.8	E.	21	22.0	E.	23	23.2	S.	20	11.6	I.
18	3.3	E.	26	10.9	E.	27	23.3	E.	24	12.2	W.
22	15.7	E.	30	23.2	E.	May 1	22.8	I.	28	9.6	S.
27	4.1	E.	Aug. 4	11.0	E.	5	23.9	W.	Aug 1	7.0	E.
May 1	16.5	E.	8	23.0	E.	9	21.6	S.	5	9.2	I.
6	4.9	E.	13	12.3	E.	13	19.7	E.	9	9.0	W.
10	17.3	E.	18	0.7	E.	17	21.1	I.	13	7.3	S.
15	5.6	E.	22	13.0	E.	21	22.0	W.	17	5.5	E.
19	18.0	E.	27	1.4	E.	25	19.6	S.	21	7.0	I.
24	6.4	E.	31	13.8	E.	20	17.6	E.	25	7.8	W.
28	18.7	E.	Sept 5	2.2	E.	22	19.1	I.	29	5.2	S.
June 2	7.0	E.	9	14.6	E.	June 6	19.9	W.	Sept. 2	3.5	E.
6	19.4	E.	14	3.0	E.	10	17.3	S.	6	5.2	I.
11	7.7	E.	18	15.4	E.	14	15.3	E.	10	6.1	W.
15	20.0	E.	23	3.9	E.	18	16.7	I.	14	3.7	S.
20	8.4	E.	27	16.4	E.	22	17.5	W.	18	2.1	E.
24	20.6	E.	Oct. 2	4.8	E.	26	14.8	S.	22	4.0	I.
29	9.0	E.	6	17.3	E.	30	12.7	E.	26	5.1	W.
July 3	21.3	E.	11	5.8	E.	July 4	14.0	I.	30	2.6	S.

IAPETUS.

Mar.	d		Apr.	d		June	d		July	d		Aug.	d		Oct.	d	
Mar.	21.6	S	Apr.	29.2	I.	June	8.8	S.	July	16.5	I.	Aug.	25.9	S.	Oct.	3.3	I.
Apr.	9.9	E	May	19.7	W.		27.6	E.	Aug.	5.8	W.	Sept.	13.9	E.		24.2	W.

THE APPARENT ELEMENTS OF SATURN'S RINGS.

Greenwich Mean Noon.	<i>a</i>		<i>p</i> Inclination of Northern Semi-Minor Axis to Circle of Declination from North to East.	<i>l</i> The Elevation of the Earth above the Plane of the Rings.	<i>l'</i> The Elevation of the Sun above the Plane of the Rings.	<i>u</i> <i>u'</i> Earth's Longitude from Saturn counted on the Plane of the Rings from their Ascending Node on the—	
	Outer Major Axis.	Outer Minor Axis.				Equator.	Ecliptic.
Jan. 0	33.95	14.80	+ 6 46.4	+ 25 50.6	+ 25 49.0	333 56.6	291 42.8
20	34.14	14.66	6 54.3	25 25.9	25 43.8	336 29.1	294 15.3
Feb. 9	34.65	14.64	7 0.8	25 0.0	25 38.9	338 49.4	296 35.7
Mar. 1	35.45	14.77	7 5.8	24 37.0	25 33.6	340 48.6	298 34.9
21	36.49	15.02	7 9.0	24 18.2	25 28.2	342 17.8	300 4.1
Apr. 10	37.70	15.40	+ 7 10.7	+ 24 6.8	+ 25 22.6	343 10.4	300 56.8
30	38.97	15.90	7 11.2	24 4.6	25 16.9	343 22.2	301 8.8
May 20	40.14	16.45	7 10.5	24 12.1	25 11.0	342 53.4	300 40.1
June 9	41.02	16.98	7 8.1	24 27.2	25 5.0	341 49.4	299 36.2
29	41.46	17.38	7 5.0	24 47.2	24 58.7	340 21.9	298 8.9
July 19	41.36	17.57	+ 7 1.1	+ 25 7.9	+ 24 52.2	338 48.1	296 35.2
Aug. 8	40.76	17.50	6 57.5	25 25.6	24 45.6	337 26.6	295 13.7
28	39.76	17.20	6 55.0	25 37.6	24 38.9	336 33.4	294 20.6
Sept. 17	38.54	16.72	6 54.4	25 42.4	24 31.9	336 19.0	294 6.2
Oct. 7	37.29	16.17	6 55.9	25 39.7	24 24.8	336 46.9	294 34.2
27	36.13	15.55	+ 6 59.2	+ 25 29.2	+ 24 17.4	337 55.1	295 42.6
Nov. 16	35.17	14.97	7 3.8	25 11.2	24 10.0	339 37.5	297 25.0
Dec. 6	34.48	14.45	7 8.8	24 46.5	24 2.5	341 45.5	299 33.2
26	34.10	14.00	7 13.6	24 15.1	23 54.6	344 9.4	301 57.2
31	34.05	13.91	+ 7 14.7	+ 24 6.6	+ 23 52.7	344 46.7	302 34.5

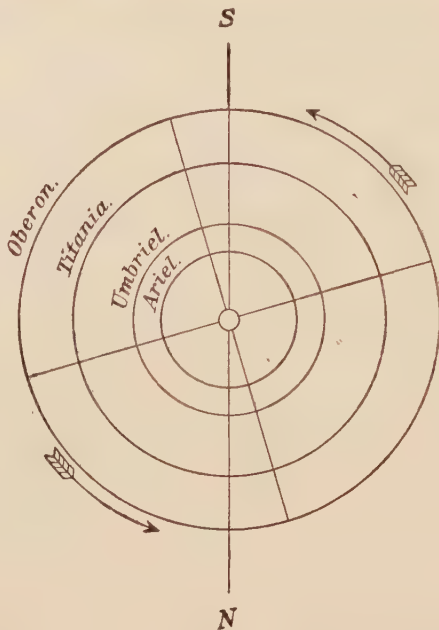
The factor to be multiplied by *a* and *b* to obtain the axes of—

The inner ellipse of the outer ring = 0.8801,	log factor = 9.9445
The outer ellipse of the inner ring = 0.8599,	log factor = 9.9344
The inner ellipse of the inner ring = 0.6650,	log factor = 9.8228
The inner ellipse of the dusky ring = 0.5486,	log factor = 9.7392

NOTE.—The positive sign of *l* indicates that the visible surface of the rings is the northern one.

Apparent Apisdes.

Date.	Position Angle.	App. Distances.	Ariel.	Umbriel.
	°	"	"	"
Apr. 7.	271.3	14.3	19.9	
June 6.	285.7	14.6	20.4	
Aug. 5.	299.2	14.2	19.8	



Apparent Apisdes.

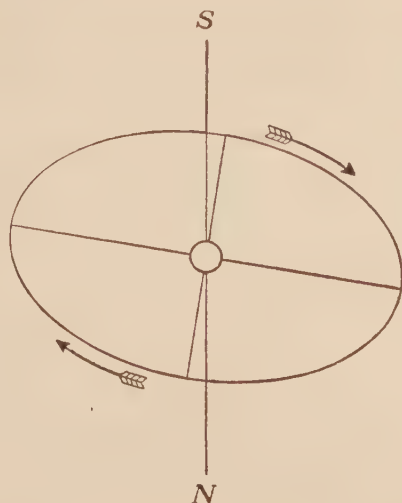
Date.	Position Angle.	App. Distances.	Titania.	Oberon.
	°	"	"	"
Apr. 7.	271.3	32.6	43.6	
June 6.	285.7	33.4	44.7	
Aug. 5.	299.2	32.6	43.5	

APPARENT ORBITS OF THE SATELLITES OF URANUS IN 1901,
AS SEEN IN AN INVERTING TELESCOPE.

WASHINGTON MEAN TIME OF GREATEST ELONGATION.

ARIEL.		UMBRIEL.		TITANIA.		OBERON.
West.	East.	West.	East.	West.	East.	West and East.
d h	d h	d h	d h	d h	d h	d h
Mar. 7 15.9	Mar. 11 10.6	Mar. 6 9.3	Mar. 8 10.9	Mar. 8 7.3	Mar. 12 15.6	Mar. 19 17.1 W.
15 5.3	19 0.0	14 16.0	16 17.7	16 23.9	21 8.3	26 10.7 E.
22 18.7	26 13.5	22 22.9	25 0.6	25 16.8	30 1.4	Apr. 2 4.5 W.
30 8.2	Apr. 3 3.0	31 5.8	Apr. 2 7.6	Apr. 3 10.0	Apr. 7 18.7	8 22.6 E.
Apr. 6 21.8	10 16.6	Apr. 8 12.9	10 14.7	12 3.4	16 12.3	15 17.0 W.
14 11.4	18 6.2	16 20.2	18 22.0	20 21.2	25 6.1	22 11.5 E.
22 1.0	25 19.9	25 3.5	27 5.3	29 15.1	May 4 0.1	29 6.3 W.
29 14.7	May 3 9.6	May 3 10.9	May 5 12.7	May 8 9.2	12 18.3	May 6 1.2 E.
May 7 4.5	10 23.4	11 18.3	13 20.2	17 3.4	21 12.6	12 20.4 W.
14 18.3	18 13.2	20 1.9	22 3.8	25 21.8	30 7.0	19 15.6 E.
22 8.1	26 3.0	28 9.4	30 11.3	June 3 16.2	June 8 1.4	26 10.8 W.
29 21.9	June 2 16.8	June 5 17.0	June 7 18.9	12 10.6	16 19.8	June 2 6.2 E.
June 6 11.8	10 6.7	14 0.6	16 2.5	21 5.0	25 14.1	9 1.5 W.
14 1.6	17 20.5	22 8.2	24 10.0	29 23.3	July 4 8.4	15 20.8 E.
21 15.4	25 10.3	30 15.7	July 2 17.6	July 8 17.4	13 2.4	22 16.0 W.
29 5.2	July 3 0.1	July 8 23.1	11 1.0	17 11.3	21 20.2	29 11.1 E.
July 6 19.0	10 13.9	17 6.5	19 8.4	26 5.1	30 13.9	July 6 6.1 W.
14 8.7	18 3.6	25 13.8	27 15.6	Aug. 3 22.6	Aug. 8 7.3	13 1.0 E.
21 22.4	25 17.3	Aug. 2 21.0	Aug. 4 22.8	12 16.0	17 0.6	19 19.6 W.
29 12.1	Aug. 2 6.9	11 4.1	13 5.9	21 9.1	25 17.6	26 14.1 E.
Aug. 6 1.7	9 20.5	19 11.2	21 12.9	30 2.0	Sept. 3 10.3	Aug. 2 8.4 W.
13 15.3	17 10.0	27 18.1	29 19.8	Sept. 7 18.6	12 2.8	9 2.5 E.
21 4.8	24 23.5	Sept. 5 0.9	Sept. 7 2.6	16 11.0	20 19.1	15 20.4 W.
28 18.3	Sept. 1 13.0	13 7.6	15 9.3	25 3.1	29 11.1	22 14.1 E.
Sept. 5 7.7	9 2.4	21 14.2	23 15.9	Oct. 3 19.1	Oct. 8 2.9	29 7.6 W.
Period of Ariel, d h 2 12.489		Period of Titania, d h 8 16.942		Period of Oberon, d h 13 11.119		
Period of Umbriel, d h 4 3.460						

NOTE.—For Ariel only every third elongation is given, and for Umbriel every alternate one. The intermediate ones may be found by adding multiples of the period of the satellite.



Date.	Position Angle of Apsis. °	Apparent Distance at Apsis. "
Feb. 2,	257.0	+ 16.7
Sept. 26,	262.7	+ 16.4
Dec. 15,	261.3	+ 16.9

APPARENT ORBIT OF THE SATELLITE OF NEPTUNE IN 1901,
AS SEEN IN AN INVERTING TELESCOPE.

WASHINGTON MEAN TIME OF GREATEST ELONGATION.

West.		East.		West.		East.		West.		East.	
d	h	d	h	d	h	d	h	d	h	d	h
Jan. 2	0.5	Jan. 4	23.0	Mar. 13	13.6	Mar. 16	12.2	Oct. 28	15.8	Oct. 25	17.3
7	21.6	10	20.2	19	10.7	22	9.2	Nov. 3	12.9	31	14.4
13	18.7	16	17.3	25	7.7	28	6.2	9	10.0	6	11.4
19	15.8	22	14.4	Sept. 5	18.6	Sept. 2	20.1	15	7.1	12	8.5
25	13.0	28	11.5	11	15.6	8	17.1	21	4.2	18	5.6
31	10.1	Feb. 3	8.6	17	12.6	14	14.1	27	1.3	24	2.8
Feb. 6	7.2	9	5.7	23	9.6	20	11.1	Dec. 2	22.4	29	23.8
12	4.3	15	2.8	29	6.6	26	8.1	8	19.5	5	21.0
18	1.4	20	23.9	Oct. 5	3.6	Oct. 2	5.1	14	16.7	11	18.1
23	22.4	26	21.0	11	0.7	8	2.2	20	13.8	17	15.2
Mar. 1	19.5	Mar. 4	18.0	16	21.7	13	23.2	26	10.9	23	12.4
7	16.6	10	15.1	22	18.8	19	20.2	32	8.0	29	9.5

The above times are those of each passage of the satellite through the apsis of its apparent orbit. The position of the satellite at any time may be found by measuring around the orbit from the apsis last passed through, remembering that the radius vector of the satellite describes equal areas in equal times.

Period of the satellite of Neptune, 5^d 21.044^h.

NOTE.—In the preceding diagrams the central circle represents the planet and is on the same scale as the orbits.

WASHINGTON MEAN TIME.

PLANETARY CONFIGURATIONS.

	d	h	m		d	h	m	
Jan.	2	3	-	⊕ in Perihelion.	Mar.	27	8	♀ Greatest Hel. Lat. S.
	3	1	58	♂ ♀ ☾ ♀ + 1 2		30	9 51	♂ ♀ ☾ ♂ + 8 56
	3	4	-	♂ ♀ ☽ ♀ + 1 10	Apr.	1	12	☐ ♀ ☽
	5	16	-	in Aphelion.		3	14	♀ Greatest elong. W. 27 48
	7	5	-	♂ ♀ ♃ ♀ - 1 51		3	15	♀ in Aphelion.
	9	3	6	♂ ♀ ☾ ♂ + 9 10		4	18	♂ Stationary.
	13	16	-	♂ Stationary.		5	20	☐ ♀ ☽
	15	4	-	♂ ♀ ♃ ♀ + 0 22		8	15 30	♂ ♀ ☾ ♂ - 2 7
	16	12	29	♂ ♀ ☾ ♂ - 1 18		10	18 29	♂ ♀ ☾ ♀ - 3 55
	17	15	58	♂ ♀ ☾ ♀ - 2 13		11	1 42	♂ ♀ ☾ ♀ - 3 42
	17	21	16	♂ ♀ ☾ ♀ - 2 12		16	16 19	♂ ♀ ☾ ♀ - 7 5
	18	10	30	♂ ♀ ☾ ♀ - 2 41		18	1 23	♂ ♀ ☾ ♀ - 3 47
	19	22	11	♂ ♀ ☾ ♀ - 6 34		22	3 53	♂ ♀ ☾ ♀ + 1 48
	20	5	-	♂ Greatest Hel. Lat. N.		24	0	♀ Greatest Hel. Lat. S.
	21	9	-	♂ ♀ ☽ Superior.		25	11	♀ Stationary.
	24	3	-	♂ ♀ ♃ ♀ - 0 20		26	20 46	♂ ♀ ☾ ♂ + 7 57
	26	1	-	♀ Greatest Hel. Lat. S.		30	4	♀ Stationary.
	29	12	-	♀ in ☿		30	8	♂ Superior.
	30	7	56	♂ ♀ ☾ ♀ + 1 6	May	5	19 59	♂ ♀ ☾ ♂ - 2 8
Feb.	5	4	55	♂ ♀ ☾ ♂ + 9 54		8	1 30	♂ ♀ ☾ ♀ - 3 59
	12	23	50	♂ ♀ ☾ ♂ - 1 37		8	7 55	♂ ♀ ☾ ♀ - 3 48
	14	1	-	♀ in ♄		13	0	♀ in ♄
	14	7	-	♂ in ♄		14	0	♂ Superior.
	14	12	10	♂ ♀ ☾ ♀ - 2 51		17	-	☽ Eclipsed; invis. at Wash.
	15	1	52	♂ ♀ ☾ ♀ - 3 2		17	15	♀ in Perihelion.
	17	4	6	♂ ♀ ☾ ♀ - 5 49		17	20 10	♂ ♀ ☾ ♀ + 1 38
	18	15	-	♀ in Perihelion.		17	20 13	♂ ♀ ☾ ♀ + 0 38
	19	4	-	♀ Greatest elong. E. 18 7		18	1	♂ ♀ ☾ ♀ + 1 4
	19	19	27	♂ ♀ ☾ ♀ - 3 29		19	15 13	♂ ♀ ☾ ♀ + 1 54
	21	13	-	♂ ♀ ☽ in ♄		22	15	♀ in ♄
	24	14	-	♂ in Aphelion.		24	21 35	♂ ♀ ☾ ♂ + 6 59
	25	5	-	♀ Stationary.		27	22	♀ Greatest Hel. Lat. N.
	26	12	47	♂ ♀ ☾ ♀ + 1 20		28	2	☐ ♂ ☽
	28	22	-	♀ Greatest Hel. Lat. N.		31	6	♂ ♀ ☾ ♀ + 3 18
Mar.	3	16	25	♂ ♀ ☾ ♂ + 9 53	June	2	0 0	♂ ♀ ☾ ♂ - 2 2
	5	1	-	♀ in Aphelion.		4	3 43	♂ ♀ ☾ ♀ - 3 53
	7	0	-	♂ ♀ ☽ Inferior.		4	11 24	♂ ♀ ☾ ♀ - 3 43
	7	9	-	☐ ♂ ☽		5	15	♂ ♀ ☽
	7	13	-	♀ Stationary.		8	20	♂ ♀ ☽
	12	9	3	♂ ♀ ☾ ♂ - 1 56		15	11	♀ Greatest elong. E. 24 39
	12	14	-	♂ ♀ ♀ ♀ + 4 30		16	3 12	♂ ♀ ☾ ♀ + 1 57
	14	5	43	♂ ♀ ☾ ♀ - 3 25		16	19 40	♂ ♀ ☾ ♀ + 4 43
	14	15	32	♂ ♀ ☾ ♀ - 3 26		17	17 58	♂ ♀ ☾ ♀ + 5 5
	17	2	-	☐ ♀ ☽		20	8	♂ ♀ ☽
	18	12	32	♂ ♀ ☾ ♀ - 3 48		20	9	♀ in ☿
	19	5	40	♂ ♀ ☾ ♀ - 6 31		21	10	☽ enters ♄, Summer com.
	19	9	-	♀ Stationary.		22	6 43	♂ ♀ ☾ ♂ + 5 45
	20	14	-	☽ enters ♑, Spring com.		25	8	♀ in Perihelion.
	21	18	-	♀ Stationary.		28	18	♀ Stationary.
	24	10	-	♀ in ☿		29	4 54	♂ ♀ ☾ ♂ - 1 58
	25	18	55	♂ ♀ ☾ ♀ + 1 36		30	0	♂ ♀ ☽

WASHINGTON MEAN TIME.

PLANETARY CONFIGURATIONS.

	d	h	m		°
June	30	14		♂ ♀ ♀	♀ - 3 57
	30	14		♀ in Aphelion.	
July	1	4	2	♂ ♀ ♀	♀ - 3 42
	1	14	19	♂ ♀ ♀	♀ - 3 35
	3	23		♂ in Aphelion.	
	5	4		♂ ♀ ♀	
	12	17		♂ ♀ ♀ Inferior.	
	13	14	2	♂ ♀ ♀	♀ + 2 3
	14	22	33	♂ ♀ ♀	♀ - 0 37
	15	10		♀ in ♄	
	17	0	30	♂ ♀ ♀	♀ + 6 55
	17	3		♀ Greatest Hel. Lat. N.	
	20	20	47	♂ ♀ ♀	♂ + 4 6
	20	23		♀ Greatest Hel. Lat. S.	
	23	9		♀ Stationary.	
	26	11	17	♂ ♀ ♀	♂ - 2 2
	28	5	55	♂ ♀ ♀	♀ - 3 37
	28	18	33	♂ ♀ ♀	♀ - 3 34
Aug.	1	21		♀ Greatest elong. W.	19 22
	5	19		♂ in ♄	
	9	0		♀ in ♄	
	9	22	40	♂ ♀ ♀	♀ + 2 14
	12	13	47	♂ ♀ ♀	♀ + 5 48
	13	14		♀ in Perihelion.	
	16	6	1	♂ ♀ ♀	♀ + 5 37
	18	14	11	♂ ♀ ♀	♂ + 2 3
	21	22		♂ Stationary.	
	22	19	2	♂ ♀ ♀	♂ - 2 14
	23	21		♀ Greatest Hel. Lat. N.	
	24	11	38	♂ ♀ ♀	♀ - 3 45
	25	0	57	♂ ♀ ♀	♀ - 3 42
	27	4		♂ ♀ ♀ Superior.	
	30	5		♀ Stationary.	
Sept.	5	12		♂ ♀ ♀	♀ + 2 29
	6	5	18	♂ ♀ ♀	♀ + 2 29
	11	5		♀ in ♄	
	13	13	27	♂ ♀ ♀	♀ + 3 49
	13	19		♀ Stationary.	
	15	10	2	♂ ♀ ♀	♀ + 1 15
	16	8		♀ in ♄	
	16	10	25	♂ ♀ ♀	♂ - 0 11
	19	3	34	♂ ♀ ♀	♂ - 2 30
	20	21	35	♂ ♀ ♀	♀ - 4 4
	21	9	17	♂ ♀ ♀	♀ - 3 57
	23	1		♂ enters ♄, Autumn com.	
	24	14		♂ ♀ ♀	
	26	13		♀ in Aphelion.	
	27	13		♂ ♀ ♀	
Oct.	3	6		♂ ♀ ♀	♀ + 2 40
	3	11	23	♂ ♀ ♀	♀ + 2 40
	4	13		♀ Stationary.	

	d	h	m		°
Oct.	9	21		♂ ♀ ♀	♀ - 0 55
	11	23		♀ Greatest elong. E.	25 4
	14	0	37	♂ ♀ ♀	♀ - 3 15
	15	9	31	♂ ♀ ♀	♂ - 2 24
	15	15	14	♂ ♀ ♀	♀ - 3 48
	15	16		♀ in Aphelion.	
	16	12	22	♂ ♀ ♀	♂ - 2 43
	16	23		♀ Greatest Hel. Lat. S.	
	18	10	54	♂ ♀ ♀	♀ - 4 25
	18	18	51	♂ ♀ ♀	♀ - 4 11
	24	0		♀ Stationary.	
	24	19		♂ ♀ ♀	♀ - 2 21
	26	-		♀ Eclipsed; invis. at Wash.	
	30	18	47	♂ ♀ ♀	♀ + 2 44
Nov.	3	15		♂ ♀ ♀	♂ - 0 54
	4	1		♂ ♀ ♀ Inferior.	
	4	23		♀ in ♄	
	7	1		♀ Greatest Hel. Lat. S.	
	9	13		♀ in Perihelion.	
	9	13	49	♂ ♀ ♀	♀ + 2 9
	10	-		♂ Eclipsed; invis. at Wash.	
	12	20		♀ Stationary.	
	12	21	20	♂ ♀ ♀	♂ - 2 51
	13	11	23	♂ ♀ ♀	♂ - 4 19
	14	21	21	♂ ♀ ♀	♀ - 7 20
	15	2	31	♂ ♀ ♀	♀ - 4 44
	15	5	13	♂ ♀ ♀	♀ - 4 21
	17	13		♂ ♀ ♀	♀ - 2 45
	18	14		♂ ♀ ♀	♀ - 3 12
	19	20		♀ Greatest Hel. Lat. N.	
	20	12		♀ Greatest elong. W.	19 42
	27	4	8	♂ ♀ ♀	♀ + 2 40
	27	13		♂ ♀ ♀	♀ - 0 27
	27	13		♀ Greatest elong. E.	47 19
	9	4		♂ ♀ ♀	♀ - 1 24
	9	5	10	♂ ♀ ♀	♀ - 1 24
	10	6	45	♂ ♀ ♀	♂ - 2 56
	12	15	5	♂ ♀ ♀	♂ - 5 43
	12	16	35	♂ ♀ ♀	♀ - 4 27
	12	20	0	♂ ♀ ♀	♀ - 4 58
	13	7		♀ in ♄	
	13	17		♂ ♀ ♀	♂ - 1 19
	14	17	54	♂ ♀ ♀	♀ - 7 30
	16	21		♂ ♀ ♀	♂ - 0 52
	17	19		♂ ♀ ♀	♂ - 0 28
	21	19		♂ enters ♄, Winter com.	
	21	21		♂ ♀ ♀ in Aphelion.	
	23	13		♀ in Aphelion.	
	24	14	15	♂ ♀ ♀	♀ + 2 35
	31	13		♂ in Perihelion.	

FORMULÆ FOR THE REDUCTION OF THE POSITIONS OF THE FIXED STARS, USING THE NOTATION OF BESSEL, AND THE CONSTANTS OF THE PARIS CONFERENCE, OF MAY, 1896.

NOTATION.

- τ , the time, reckoned in units of one year, from the beginning of the Besselian fictitious year, (1900, December 31.342^u = 1901, January 0.342^u, Washington mean time),
 a_0, δ_0 , the star's mean right ascension and declination at the beginning of the fictitious year,
 α, δ , the star's apparent right ascension and declination at the time τ ,
 μ, μ' the annual proper motion in right ascension and declination,
 \odot , the sun's true longitude,
 L , the sun's mean longitude,
 Ω , the longitude of the moon's ascending node,
- ω , the obliquity of the ecliptic,
 Γ' , the longitude of the moon's perigee,
 \mathcal{Q} , the moon's mean longitude.

BESSELIAN STAR-NUMBERS.

$$\begin{aligned}
 A &= \tau - 0.34215 \sin \Omega & + 0.00024 \sin (\mathcal{Q} + \Gamma') \\
 &+ 0.00415 \sin 2 \Omega & + 0.00133 \sin (\mathcal{Q} - \Gamma') \\
 &- 0.02495 \sin 2 L & - 0.00068 \sin (2 \mathcal{Q} - \Omega) \\
 &+ 0.00218 \sin (L + 75.3^\circ) & - 0.00052 \sin (3 \mathcal{Q} - \Gamma') \\
 &- 0.00097 \sin (3 L + 78.7^\circ) & + 0.00030 \sin (\mathcal{Q} - 2 L + \Gamma') \\
 &- 0.00405 \sin 2 \mathcal{Q} & + 0.00012 \sin 2 (\mathcal{Q} - L) \\
 & & \\
 B &= -9.210 \cos \Omega & - 0.088 \cos 2 \mathcal{Q} \\
 &+ 0.090 \cos 2 \Omega & - 0.018 \cos (2 \mathcal{Q} - \Omega) \\
 &- 0.546 \cos 2 L & - 0.011 \cos (3 \mathcal{Q} - \Gamma') \\
 &- 0.021 \cos (3 L + 78.7^\circ) & + 0.005 \cos (\mathcal{Q} + \Gamma') \\
 &+ 0.009 \cos (L - 78.7^\circ) & \\
 & & \\
 C &= -20.4700 \cos \omega \cos \odot \\
 D &= -20.4700 \sin \odot \\
 E &= -0.0426 \sin \Omega + 0.0005'' \sin 2 \Omega - 0.0031'' \sin 2 L
 \end{aligned}$$

BESSEL'S Star-Constants

$$\begin{aligned}
 a &= 3.07236^s + 1.33645^s \sin a_0 \tan \delta_0 = \text{precession in right ascension} \\
 b &= \frac{1}{15} \cos a_0 \tan \delta_0 \\
 c &= \frac{1}{15} \cos a_0 \sec \delta_0 \\
 d &= \frac{1}{15} \sin a_0 \sec \delta_0 \\
 a' &= 20.0467'' \cos a_0 = \text{precession in declination} \\
 b' &= -\sin a_0 \\
 c' &= \tan \omega \cos \delta_0 - \sin a_0 \sin \delta_0 \\
 d' &= \cos a_0 \sin \delta_0
 \end{aligned}$$

Reduction to Apparent Position.

$$\begin{aligned}
 \alpha &= a_0 + \tau \mu + Aa + Bb + Cc + Dd + \frac{1}{15} E & (\text{in time}) \\
 \delta &= \delta_0 + \tau \mu' + Aa' + Bb' + Cc' + Dd' & (\text{in arc})
 \end{aligned}$$

INDEPENDENT STAR-NUMBERS.

$$\begin{aligned}
 f &= f' + f'' = +46.0853'' A + E \text{ (in arc)} = 3.07236^s A + \frac{1}{15} E \text{ (in time)} \\
 f'' &= -0.0124^s \sin 2 \mathcal{Q} + 0.0041^s \sin (\mathcal{Q} - \Gamma') + 0.0007^s \sin (\mathcal{Q} + \Gamma') \\
 &- 0.0021^s \sin (2 \mathcal{Q} - \Omega) - 0.0016^s \sin (3 \mathcal{Q} - \Gamma') \\
 &+ 0.0009^s \sin (\mathcal{Q} - 2 L + \Gamma') + 0.0004^s \sin 2 (\mathcal{Q} - L) \\
 g \sin G &= B & h \sin H &= C \\
 g \cos G &= 20.0467'' A & h \cos H &= D & i &= C \tan \omega
 \end{aligned}$$

Reduction to Apparent Position.

$$\begin{aligned}
 \alpha &= a_0 + f + \tau \mu + \frac{1}{15} g \sin (G + a_0) \tan \delta_0 + \frac{1}{15} h \sin (H + a_0) \sec \delta_0 \text{ (in time)} \\
 \delta &= \delta_0 + \tau \mu' + g \cos (G + a_0) + h \cos (H + a_0) \sin \delta_0 + i \cos \delta_0 \text{ (in arc)}
 \end{aligned}$$

NOTES.—(1) The independent star-numbers are more convenient, when only one or two apparent positions of a star are required, or when BESSEL'S star-constants are not known with sufficient accuracy. Otherwise, the Besselian star-numbers are more convenient.

(2) In using the star-constants of the *British Association Catalogue*, $a, b, c, d, a', b', c', d'$, with the star-numbers of this Ephemeris, the quantities to be formed are $Ac, Bd, Ca, Db, -Ac', -Bd', -Ca', -Db'$.

(CONSTANTS OF PARIS CONFERENCE.)

FOR GREENWICH MEAN NOON.

Date.		In Longitude.		Nutation in R. A.	Obliquity. (<i>Newcomb.</i>)		The Sun's Aberration.
		Precession from 1901.0	Nutation.				
		"	"	s	° ' "	"	
Jan.	0	— 0.08	+ 15.51	+ 0.949	23 27 2.68	— 20.81	
	10	+ 1.30	15.84	0.969	2.68	20.81	
	20	2.68	16.07	0.983	2.74	20.80	
	30	4.05	16.17	0.989	2.84	20.77	
Feb.	9	5.43	16.11	0.985	2.95	20.74	
		"	"	"	"	"	
	19	+ 6.80	+ 15.89	+ 0.972	23 27 3.05	— 20.69	
Mar.	1	8.18	15.53	0.950	3.10	20.64	
	11	9.56	15.06	0.921	3.12	20.59	
	21	10.93	14.56	0.891	3.07	20.53	
	31	12.31	14.04	0.859	2.96	20.48	
		"	"	"	"	"	
Apr.	10	+ 13.68	+ 13.58	+ 0.831	23 27 2.77	— 20.42	
	20	15.06	13.20	0.807	2.54	20.36	
	30	16.44	12.96	0.793	2.29	20.31	
May	10	17.81	12.84	0.785	2.02	20.26	
	20	19.19	12.86	0.786	1.77	20.22	
		"	"	"	"	"	
	30	+ 20.56	+ 12.99	+ 0.794	23 27 1.55	— 20.18	
June	9	21.94	13.22	0.809	1.37	20.15	
	19	23.32	13.50	0.826	1.24	20.14	
	29	24.69	13.79	0.844	1.17	20.13	
July	9	26.07	14.03	0.858	1.16	20.13	
		"	"	"	"	"	
	19	+ 27.44	+ 14.21	+ 0.869	23 27 1.20	— 20.14	
	29	28.82	14.28	0.873	1.28	20.16	
Aug.	8	30.20	14.22	0.870	1.38	20.18	
	18	31.57	14.03	0.858	1.48	20.22	
	28	32.95	13.71	0.838	1.56	20.26	
		"	"	"	"	"	
Sept.	7	+ 34.32	+ 13.27	+ 0.812	23 27 1.60	— 20.31	
	17	35.70	12.76	0.780	1.60	20.37	
	27	37.07	12.22	0.748	1.54	20.42	
Oct.	7	38.45	11.70	0.716	1.41	20.48	
	17	39.83	11.24	0.688	1.21	20.54	
		"	"	"	"	"	
	27	+ 41.20	+ 10.89	+ 0.666	23 27 0.98	— 20.60	
Nov.	6	42.58	10.69	0.654	0.72	20.65	
	16	43.95	10.64	0.651	0.45	20.70	
	26	45.33	10.74	0.657	0.21	20.74	
Dec.	6	46.71	10.97	0.671	23 27 0.01	20.77	
		"	"	"	"	"	
	16	+ 48.08	+ 11.28	+ 0.690	23 26 59.87	— 20.80	
	26	49.46	11.64	0.712	59.79	20.81	
	36	+ 50.83	+ 11.97	+ 0.732	23 26 59.77	— 20.81	

Mean Obliquity, 1901.0. 23° 27' 07.79" (*Newcomb.*)

Precession for 1901 50.2566" log = 1.70119

Precession in a Solar Day 0.1376" log = 9.13861

Precession in a Sidereal Day 0.1372" log = 9.13742

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Jan. 0	+9.4851	+0.7110	-0.5190	+1.3043	Feb. 15	+9.6486	+0.6767	-1.1966	+1.0488
1	9.4918	0.7143	0.5602	1.3028	16	9.6519	0.6721	1.2015	1.0368
2	9.4991	0.7152	0.5976	1.3012	17	9.6543	0.6684	1.2062	1.0244
3	9.5068	0.7143	0.6320	1.2995	18	9.6560	0.6646	1.2107	1.0114
h 4	9.5136	0.7126	0.6637	1.2976	19	9.6569	0.6609	1.2151	0.9980
(7.0) 5	+9.5196	+0.7101	-0.6931	+1.2956	h (10.0) 20	+9.6572	+0.6599	-1.2193	+0.9840
6	9.5244	0.7076	0.7205	1.2934	21	9.6577	0.6609	1.2232	0.9694
7	9.5280	0.7050	0.7462	1.2911	22	9.6589	0.6628	1.2271	0.9541
8	9.5305	0.7016	0.7703	1.2886	23	9.6607	0.6665	1.2307	0.9382
9	9.5325	0.6998	0.7930	1.2860	24	9.6633	0.6693	1.2342	0.9215
10	+9.5344	+0.6998	-0.8144	+1.2832	25	+9.6664	+0.6712	-1.2375	+0.9043
11	9.5369	0.7007	0.8347	1.2803	26	9.6701	0.6712	1.2407	0.8860
12	9.5391	0.7024	0.8540	1.2772	27	9.6737	0.6702	1.2437	0.8664
13	9.5425	0.7042	0.8723	1.2739	28	9.6766	0.6675	1.2465	0.8461
14	9.5466	0.7059	0.8897	1.2705	Mar. 1	9.6791	0.6637	1.2492	0.8247
15	+9.5511	+0.7076	-0.9063	+1.2669	2	+9.6807	+0.6609	-1.2518	+0.8021
16	9.5565	0.7093	0.9222	1.2631	3	9.6815	0.6571	1.2542	0.7780
17	9.5619	0.7093	0.9374	1.2592	4	9.6817	0.6551	1.2564	0.7525
18	9.5675	0.7076	0.9520	1.2551	5	9.6817	0.6542	1.2585	0.7252
h 19	9.5723	0.7042	0.9659	1.2508	h (11.0) 6	9.6818	0.6542	1.2605	0.6959
(8.0) 20	+9.5766	+0.6998	-0.9793	+1.2464	7	+9.6820	+0.6561	-1.2623	+0.6644
21	9.5801	0.6964	0.9921	1.2418	8	9.6824	0.6590	1.2640	0.6304
22	9.5831	0.6920	1.0044	1.2369	9	9.6837	0.6618	1.2656	0.5933
23	9.5844	0.6893	1.0163	1.2319	10	9.6856	0.6646	1.2670	0.5526
24	9.5857	0.6893	1.0277	1.2267	11	9.6878	0.6665	1.2682	0.5076
25	+9.5881	+0.6893	-1.0386	+1.2213	12	+9.6905	+0.6684	-1.2694	+0.4572
26	9.5903	0.6920	1.0492	1.2157	13	9.6934	0.6684	1.2704	0.4001
27	9.5936	0.6955	1.0594	1.2098	14	9.6963	0.6665	1.2712	0.3343
28	9.5977	0.6972	1.0692	1.2037	15	9.6989	0.6637	1.2720	0.2565
29	9.6026	0.6972	1.0787	1.1975	16	9.7007	0.6609	1.2726	0.1615
30	+9.6077	+0.6964	-1.0878	+1.1910	17	+9.7021	+0.6580	-1.2731	+0.0397
31	9.6127	0.6937	1.0965	1.1843	18	9.7027	0.6561	1.2734	0.8698
Feb. 1	9.6171	0.6902	1.1050	1.1773	19	9.7029	0.6551	1.2736	0.5866
2	9.6201	0.6866	1.1132	1.1701	20	9.7028	0.6571	1.2737	+0.4908
h 3	9.6222	0.6821	1.1211	1.1626	21	9.7033	0.6609	1.2736	-0.5098
(9.0) 4	+9.6236	+0.6776	-1.1287	+1.1549	h (12.0) 22	+9.7044	+0.6656	-1.2734	-0.8310
5	9.6247	0.6749	1.1361	1.1469	23	9.7065	0.6693	1.2731	0.0135
6	9.6255	0.6749	1.1432	1.1386	24	9.7089	0.6730	1.2727	0.1414
7	9.6265	0.6749	1.1500	1.1301	25	9.7121	0.6749	1.2721	0.2399
8	9.6277	0.6758	1.1566	1.1210	26	9.7154	0.6758	1.2714	0.3201
9	+9.6295	+0.6767	-1.1630	+1.1118	27	+9.7182	+0.6749	-1.2706	-0.3875
10	9.6316	0.6785	1.1691	1.1022	28	9.7202	0.6739	1.2696	0.4457
11	9.6344	0.6803	1.1750	1.0923	29	9.7216	0.6721	1.2685	0.4969
12	9.6378	0.6812	1.1807	1.0820	30	9.7223	0.6693	1.2673	0.5425
13	9.6415	0.6812	1.1862	1.0714	31	9.7226	0.6684	1.2659	0.5837
14	+9.6451	+0.6794	-1.1915	+1.0603	Apr. 1	+9.7226	+0.6684	-1.2644	-0.6211
15	+9.6486	+0.6767	-1.1966	+1.0488	2	+9.7226	+0.6702	-1.2628	-0.6555

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Apr. 1	+9.7226	+0.6684	1.2044	0.6211	May 17	+9.7977	+0.7657	-1.0149	1.2325
2	9.7226	0.6702	1.2028	0.6555	18	9.8008	0.7694	1.0036	1.2373
3	9.7229	0.6739	1.2010	0.6872	19	9.8042	0.7716	0.9919	1.2418
4	9.7235	0.6785	1.2502	0.7166	20	9.8077	0.7731	0.9798	1.2462
5	9.7244	0.6830	1.2571	0.7439	21	9.8109	0.7731	0.9672	1.2504
^h (13.0) 6	+9.7258	+0.6875	1.2550	-0.7696	^h (16.0) 22	+9.8132	+0.7723	-0.9541	1.2545
7	9.7278	0.6911	1.2527	0.7936	23	9.8151	0.7709	0.9405	1.2584
8	9.7301	0.6937	1.2502	0.8163	24	9.8165	0.7701	0.9264	1.2621
9	9.7326	0.6955	1.2476	0.8377	25	9.8175	0.7709	0.9116	1.2657
10	9.7353	0.6964	1.2449	0.8580	26	9.8184	0.7723	0.8962	1.2691
11	+9.7377	+0.6955	1.2420	-0.8773	27	+9.8191	+0.7738	-0.8801	-1.2724
12	9.7398	0.6946	1.2390	0.8956	28	9.8203	0.7760	0.8633	1.2756
13	9.7415	0.6937	1.2359	0.9130	29	9.8218	0.7789	0.8456	1.2785
14	9.7424	0.6928	1.2325	0.9296	30	9.8236	0.7825	0.8271	1.2814
15	9.7430	0.6928	1.2291	0.9455	31	9.8258	0.7860	0.8077	1.2841
16	+9.7433	+0.6946	1.2255	-0.9607	June 1	+9.8283	+0.7889	-0.7872	-1.2867
17	9.7437	0.6990	1.2217	0.9752	2	9.8310	0.7910	0.7656	1.2891
18	9.7448	0.7042	1.2178	0.9892	3	9.8338	0.7924	0.7427	1.2914
19	9.7465	0.7093	1.2137	1.0026	4	9.8366	0.7924	0.7185	1.2936
20	9.7490	0.7143	1.2094	1.0154	5	9.8392	0.7917	0.6926	1.2956
^h (14.0) 21	+9.7524	+0.7177	1.2050	-1.0278	^h (17.0) 6	+9.8414	+0.7910	-0.6651	1.2975
22	9.7557	0.7202	1.2004	1.0397	7	9.8433	0.7896	0.6355	1.2993
23	9.7588	0.7210	1.1956	1.0511	8	9.8447	0.7889	0.6036	1.3009
24	9.7613	0.7210	1.1907	1.0621	9	9.8457	0.7889	0.5691	1.3025
25	9.7633	0.7202	1.1856	1.0727	10	9.8468	0.7903	0.5315	1.3039
26	+9.7647	+0.7202	1.1802	1.0829	11	+9.8480	+0.7924	-0.4902	1.3051
27	9.7654	0.7202	1.1747	1.0928	12	9.8497	0.7952	0.4444	1.3063
28	9.7661	0.7202	1.1690	1.1023	13	9.8519	0.7980	0.3931	1.3073
29	9.7665	0.7218	1.1632	1.1115	14	9.8547	0.8014	0.3348	1.3082
30	9.7669	0.7243	1.1571	1.1204	15	9.8579	0.8041	0.2673	1.3090
May 1	+9.7680	+0.7284	1.1508	-1.1290	16	+9.8612	+0.8055	-0.1872	1.3097
2	9.7691	0.7332	1.1442	1.1372	17	9.8643	0.8048	0.0887	1.3102
3	9.7707	0.7372	1.1375	1.1452	18	9.8669	0.8028	0.9611	1.3106
4	9.7727	0.7419	1.1305	1.1530	19	9.8689	0.8007	0.7794	1.3109
5	9.7749	0.7459	1.1233	1.1604	20	9.8705	0.7993	-0.9610	1.3111
^h (15.0) 6	+9.7777	+0.7482	-1.1159	1.1676	^h (18.0) 21	+9.8718	+0.7980	+8.3742	-1.3111
7	9.7805	0.7497	1.1082	1.1746	22	9.8728	0.7973	0.95267	1.3110
8	9.7835	0.7497	1.1002	1.1814	23	9.8737	0.7980	0.8121	1.3109
9	9.7861	0.7490	1.0920	1.1879	24	9.8748	0.7993	0.9827	1.3106
10	9.7880	0.7482	1.0835	1.1942	25	9.8761	0.8021	0.1048	1.3101
11	+9.7893	+0.7474	-1.0746	-1.2002	26	+9.8776	+0.8048	+0.1999	1.3096
12	9.7904	0.7474	1.0655	1.2061	27	9.8795	0.8069	0.2778	1.3089
13	9.7912	0.7490	1.0561	1.2118	28	9.8817	0.8082	0.3447	1.3081
14	9.7921	0.7528	1.0463	1.2172	29	9.8842	0.8102	0.4007	1.3072
15	9.7932	0.7574	1.0362	1.2225	30	9.8867	0.8102	0.4510	1.3062
16	+9.7952	+0.7619	-1.0257	-1.2276	July 1	+9.8892	+0.8096	+0.4961	-1.3050
17	+9.7977	+0.7657	-1.0149	-1.2325	2	+9.8917	+0.8082	+0.5367	-1.3037

$$E = +0.03'' = +0.002''$$

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
July 1	+ 9.8892	+ 0.8096	+ 0.4961	- 1.3050	Aug. 16	+ 9.9564	+ 0.7738	+ 1.1793	1.0846
2	9.8917	0.8082	0.5307	1.3037	17	9.9566	0.7738	1.1846	1.0746
3	9.8939	0.8062	0.5737	1.3023	18	9.9570	0.7752	1.1897	1.0641
4	9.8957	0.8041	0.6078	1.3008	19	9.9576	0.7767	1.1946	1.0533
5	9.8971	0.8021	0.6392	1.2991	20	9.9585	0.7782	1.1994	1.0421
h (19.0) 6	+ 9.8980	+ 0.8007	+ 0.6685	- 1.2973	h (22.0) 21	+ 9.9597	+ 0.7796	+ 1.2040	- 1.0304
7	9.8988	0.8000	0.6957	1.2954	22	9.9611	0.7803	1.2084	1.0183
8	9.8998	0.8007	0.7213	1.2934	23	9.9627	0.7796	1.2126	1.0058
9	9.9008	0.8028	0.7453	1.2912	24	9.9643	0.7782	1.2167	0.9927
10	9.9023	0.8055	0.7679	1.2889	25	9.9658	0.7760	1.2206	0.9790
11	+ 9.9048	+ 0.8075	+ 0.7893	- 1.2864	26	+ 9.9672	+ 0.7738	+ 1.2244	- 0.9648
12	9.9074	0.8089	0.8096	1.2838	27	9.9684	0.7709	1.2280	0.9500
13	9.9101	0.8089	0.8289	1.2811	28	9.9692	0.7686	1.2315	0.9346
14	9.9129	0.8075	0.8473	1.2783	29	9.9696	0.7657	1.2348	0.9184
15	9.9153	0.8055	0.8647	1.2753	30	9.9697	0.7649	1.2380	0.9014
16	+ 9.9171	+ 0.8028	+ 0.8814	- 1.2721	31	+ 9.9699	+ 0.7657	+ 1.2410	- 0.8837
17	9.9186	0.7993	0.8974	1.2689	Sept. 1	9.9703	0.7672	1.2439	0.8650
18	9.9197	0.7966	0.9126	1.2654	2	9.9710	0.7694	1.2466	0.8451
19	9.9204	0.7952	0.9273	1.2619	3	9.9720	0.7716	1.2492	0.8246
20	9.9210	0.7945	0.9414	1.2581	4	9.9735	0.7738	1.2517	0.8027
h (20.0) 21	+ 9.9218	+ 0.7945	+ 0.9549	- 1.2543	h (23.0) 5	+ 9.9753	+ 0.7745	+ 1.2540	- 0.7795
22	9.9228	0.7952	0.9678	1.2502	6	9.9772	0.7738	1.2562	0.7548
23	9.9240	0.7966	0.9803	1.2460	7	9.9786	0.7716	1.2583	0.7286
24	9.9253	0.7987	0.9923	1.2417	8	9.9797	0.7686	1.2602	0.7004
25	9.9269	0.8000	1.0039	1.2371	9	9.9805	0.7657	1.2620	0.6702
26	+ 9.9286	+ 0.8007	+ 1.0151	- 1.2324	10	+ 9.9811	+ 0.7627	+ 1.2637	- 0.6375
27	9.9307	0.8007	1.0258	1.2276	11	9.9813	0.7612	1.2652	0.6020
28	9.9329	0.7993	1.0362	1.2225	12	9.9811	0.7612	1.2666	0.5632
29	9.9349	0.7966	1.0463	1.2173	13	9.9810	0.7627	1.2679	0.5204
30	9.9367	0.7938	1.0560	1.2119	14	9.9813	0.7642	1.2691	0.4728
31	+ 9.9381	+ 0.7910	+ 1.0653	- 1.2062	15	+ 9.9816	+ 0.7664	+ 1.2701	0.4191
Aug. 1	9.9391	0.7882	1.0744	1.2004	16	9.9821	0.7686	1.2710	0.3577
2	9.9398	0.7860	1.0831	1.1944	17	9.9829	0.7709	1.2717	0.2859
3	9.9402	0.7846	1.0916	1.1882	18	9.9838	0.7723	1.2724	0.1908
4	9.9407	0.7846	1.0997	1.1817	19	9.9851	0.7731	1.2729	0.0919
h (21.0) 5	+ 9.9415	+ 0.7860	+ 1.1077	- 1.1751	h (0.0) 20	+ 9.9864	+ 0.7731	+ 1.2733	- 9.9478
6	9.9426	0.7875	1.1152	1.1682	21	9.9877	0.7723	1.2735	9.7302
7	9.9443	0.7896	1.1227	1.1611	22	9.9891	0.7716	1.2737	9.2734
8	9.9463	0.7910	1.1299	1.1537	23	9.9901	0.7694	1.2737	+ 9.2102
9	9.9485	0.7910	1.1368	1.1460	24	9.9908	0.7672	1.2735	9.7095
10	+ 9.9507	+ 0.7896	+ 1.1435	- 1.1381	25	+ 9.9912	+ 0.7657	+ 1.2733	+ 9.9355
11	9.9526	0.7868	1.1500	1.1300	26	9.9913	0.7657	1.2729	0.0826
12	9.9541	0.7825	1.1563	1.1215	27	9.9914	0.7664	1.2724	0.1931
13	9.9551	0.7789	1.1623	1.1128	28	9.9914	0.7686	1.2718	0.2814
14	9.9557	0.7760	1.1682	1.1037	29	9.9918	0.7716	1.2710	0.3543
15	+ 9.9561	+ 0.7745	+ 1.1738	- 1.0944	30	+ 9.9926	+ 0.7752	+ 1.2701	+ 0.4166
16	+ 9.9564	+ 0.7738	+ 1.1793	- 1.0846	Oct. 1	+ 9.9938	+ 0.7789	+ 1.2691	+ 0.4710

$$E = + 0.03'' = + 0.002^{\circ}$$

BESSELIAN STAR-NUMBERS, 1901.

521

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Oct. 1	+9.9938	+0.7789	+1.2691	+0.4710	Nov. 16	+0.0373	+0.8432	+1.0410	+1.2200
2	9.9954	0.7818	1.2679	0.5192	17	0.0386	0.8426	1.0303	1.2255
3	9.9970	0.7825	1.2666	0.5626	18	0.0396	0.8420	1.0190	1.2307
4	9.9986	0.7818	1.2652	0.6018	h 19	0.0403	0.8426	1.0074	1.2357
5	9.9999	0.7796	1.2637	0.6378	(4.0) 20	0.0408	0.8432	0.9953	1.2405
h (1.0) 6	+0.0010	+0.7782	+1.2620	+0.6709	21	+0.0414	+0.8451	+0.9827	+1.2452
7	0.0016	0.7774	1.2602	0.7015	22	0.0421	0.8482	0.9695	1.2497
8	0.0019	0.7774	1.2582	0.7301	23	0.0431	0.8513	0.9559	1.2540
9	0.0018	0.7774	1.2561	0.7568	24	0.0446	0.8549	0.9416	1.2581
10	0.0017	0.7782	1.2538	0.7820	25	0.0463	0.8579	0.9267	1.2620
11	+0.0018	+0.7803	+1.2514	+0.8053	26	+0.0482	+0.8603	+0.9111	+1.2658
12	0.0020	0.7839	1.2489	0.8275	27	0.0503	0.8615	0.8948	1.2694
13	0.0026	0.7889	1.2462	0.8485	28	0.0522	0.8615	0.8777	1.2729
14	0.0035	0.7917	1.2434	0.8685	29	0.0538	0.8603	0.8598	1.2762
15	0.0045	0.7945	1.2404	0.8874	30	0.0552	0.8591	0.8409	1.2793
16	+0.0056	+0.7966	+1.2372	+0.9055	Dec. 1	+0.0561	+0.8579	+0.8211	+1.2823
17	0.0068	0.7987	1.2340	0.9227	2	0.0569	0.8579	0.8001	1.2851
18	0.0081	0.7993	1.2305	0.9391	3	0.0576	0.8591	0.7779	1.2878
19	0.0094	0.7993	1.2269	0.9548	4	0.0582	0.8609	0.7544	1.2903
h 20	0.0106	0.7987	1.2231	0.9699	h 5	0.0589	0.8633	0.7294	1.2926
(2.0) 21	+0.0117	+0.7980	+1.2192	+0.9843	(5.0) 6	+0.0598	+0.8657	+0.7026	+1.2949
22	0.0123	0.7980	1.2150	0.9982	7	0.0609	0.8681	0.6740	1.2969
23	0.0127	0.7987	1.2107	1.0114	8	0.0622	0.8704	0.6432	1.2989
24	0.0128	0.8000	1.2063	1.0242	9	0.0637	0.8727	0.6099	1.3007
25	0.0131	0.8021	1.2016	1.0365	10	0.0653	0.8739	0.5737	1.3023
26	+0.0137	+0.8055	+1.1968	+1.0483	11	+0.0669	+0.8745	+0.5340	+1.3038
27	0.0145	0.8096	1.1918	1.0597	12	0.0685	0.8745	0.4901	1.3052
28	0.0157	0.8136	1.1865	1.0707	13	0.0701	0.8733	0.4412	1.3064
29	0.0173	0.8169	1.1811	1.0813	14	0.0715	0.8716	0.3858	1.3074
30	0.0192	0.8195	1.1755	1.0915	15	0.0727	0.8704	0.3222	1.3084
31	+0.0210	+0.8209	+1.1697	+1.1014	16	+0.0736	+0.8704	+0.2475	+1.3092
Nov. 1	0.0227	0.8209	1.1636	1.1109	17	0.0743	0.8704	0.1571	1.3098
2	0.0241	0.8202	1.1573	1.1200	18	0.0750	0.8710	0.0424	1.3104
3	0.0251	0.8189	1.1508	1.1289	19	0.0757	0.8727	0.8862	1.3108
h 4	0.0258	0.8182	1.1441	1.1375	h 20	0.0766	0.8751	0.6393	1.3110
(3.0) 5	+0.0261	+0.8182	+1.1371	+1.1457	(6.0) 21	+0.0779	+0.8774	+0.0088	+1.3111
6	0.0262	0.8202	1.1298	1.1536	22	0.0795	0.8797	-0.9651	1.3111
7	0.0265	0.8235	1.1223	1.1615	23	0.0814	0.8814	0.97525	1.3109
8	0.0271	0.8274	1.1145	1.1689	24	0.0835	0.8820	0.9538	1.3106
9	0.0278	0.8306	1.1065	1.1761	25	0.0855	0.8808	0.0908	1.3102
10	+0.0287	+0.8331	+1.0981	+1.1831	26	+0.0872	+0.8791	-0.1946	+1.3096
11	0.0300	0.8363	1.0894	1.1898	27	0.0886	0.8768	0.2783	1.3089
12	0.0313	0.8395	1.0804	1.1963	28	0.0898	0.8751	0.3483	1.3080
13	0.0328	0.8414	1.0711	1.2025	29	0.0906	0.8739	0.4085	1.3070
14	0.0343	0.8426	1.0615	1.2086	30	0.0912	0.8739	0.4612	1.3059
15	+0.0359	+0.8432	+1.0515	+1.2144	31	+0.0918	+0.8739	-0.5080	+1.3046
16	+0.0373	+0.8432	+1.0410	+1.2200	32	+0.0925	+0.8756	-0.5501	+1.3032

$$E = +0.03'' = +0.002''$$

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f'	f''	G		H		Log g .	Log h .	i	Log i .		
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
Jan.	y	s	s	°	h m	°	h m			"			
	0	0.0004	+ 0.952	- 0.010	40 0	2 40.0	350 41	23 22.7	+ 0.9028	+ 1.3101	- 1.43	- 0.1563	
	1	0.0032	0.963	0.007	39 47	2 39.1	349 45	23 19.0	0.9082	1.3098	1.58	0.1975	
	2	0.0059	0.973	- 0.001	39 22	2 37.5	348 48	23 15.2	0.9129	1.3096	1.72	0.2349	
	3	0.0086	0.984	+ 0.006	38 49	2 35.3	347 52	23 11.5	0.9172	1.3093	1.86	0.2693	
	h	4	0.0114	0.995	0.010	38 16	2 33.1	346 55	23 7.7	0.9207	1.3090	2.00	0.3010
	(7.0)	5	0.0141	+ 1.005	+ 0.014	37 43	2 30.9	345 59	23 3.9	+ 0.9234	+ 1.3087	- 2.14	- 0.3304
	6	0.0169	1.016	0.015	37 15	2 29.0	345 2	23 0.1	0.9255	1.3084	2.28	0.3578	
	7	0.0196	1.026	0.013	36 52	2 27.5	344 5	22 56.3	0.9269	1.3081	2.42	0.3835	
	8	0.0223	1.036	0.009	36 30	2 26.0	343 8	22 52.5	0.9273	1.3077	2.56	0.4076	
	9	0.0251	1.046	+ 0.004	36 15	2 25.0	342 11	22 48.7	0.9279	1.3073	2.69	0.4303	
	10	0.0278	+ 1.056	- 0.002	36 8	2 24.5	341 14	22 44.9	+ 0.9292	+ 1.3069	- 2.83	- 0.4517	
	11	0.0305	1.067	0.006	36 2	2 24.1	340 17	22 41.1	0.9311	1.3065	2.96	0.4720	
	12	0.0333	1.077	0.010	36 0	2 24.0	339 19	22 37.3	0.9331	1.3061	3.10	0.4913	
	13	0.0360	1.087	0.013	35 54	2 23.6	338 22	22 33.5	0.9360	1.3056	3.23	0.5096	
	14	0.0388	1.097	0.014	35 45	2 23.0	337 24	22 29.6	0.9393	1.3052	3.36	0.5270	
	15	0.0415	+ 1.107	- 0.012	35 35	2 22.3	336 27	22 25.8	+ 0.9428	+ 1.3047	- 3.50	- 0.5436	
	16	0.0442	1.117	0.008	35 21	2 21.4	335 29	22 21.9	0.9469	1.3042	3.63	0.5595	
	17	0.0470	1.126	- 0.003	35 1	2 20.1	334 31	22 18.1	0.9505	1.3037	3.76	0.5747	
	18	0.0497	1.136	+ 0.001	34 34	2 18.3	333 33	22 14.2	0.9539	1.3031	3.88	0.5893	
	h	19	0.0524	1.145	0.006	34 3	2 16.2	332 35	22 10.3	0.9560	1.3025	4.01	0.6032
	(8.0)	20	0.0552	+ 1.155	+ 0.009	33 31	2 14.1	331 36	22 6.4	+ 0.9576	+ 1.3020	- 4.13	- 0.6166
	21	0.0579	1.164	0.009	33 6	2 12.4	330 38	22 2.5	0.9590	1.3015	4.26	0.6294	
	22	0.0607	1.173	0.006	32 40	2 10.7	329 39	21 58.6	0.9599	1.3009	4.38	0.6417	
	23	0.0634	1.182	+ 0.001	32 25	2 9.7	328 40	21 54.7	0.9597	1.3004	4.50	0.6536	
	24	0.0661	1.191	- 0.005	32 21	2 9.4	327 42	21 50.8	0.9604	1.2998	4.62	0.6650	
	25	0.0689	+ 1.200	- 0.007	32 12	2 8.8	326 43	21 46.9	+ 0.9626	+ 1.2992	- 4.74	- 0.6759	
	26	0.0716	1.209	0.010	32 12	2 8.8	325 43	21 42.9	0.9652	1.2986	4.86	0.6865	
	27	0.0743	1.218	0.010	32 10	2 8.7	324 44	21 38.9	0.9684	1.2979	4.97	0.6967	
	28	0.0771	1.227	0.008	32 6	2 8.4	323 44	21 34.9	0.9718	1.2972	5.09	0.7065	
	29	0.0798	1.235	- 0.002	31 49	2 7.3	322 44	21 30.9	0.9753	1.2967	5.20	0.7160	
30	0.0826	+ 1.243	+ 0.004	31 28	2 5.9	321 45	21 27.0	+ 0.9788	+ 1.2960	- 5.31	- 0.7251		
31	0.0853	1.252	0.010	31 1	2 4.1	320 45	21 23.0	0.9816	1.2953	5.42	0.7338		
Feb.	1	0.0880	1.261	0.014	30 33	2 2.2	319 45	21 19.0	0.9840	1.2946	5.52	0.7423	
	2	0.0908	1.269	0.014	30 10	2 0.7	318 44	21 14.9	0.9853	1.2940	5.63	0.7505	
	h	3	0.0935	1.277	0.013	29 48	1 59.2	317 44	21 10.9	0.9858	1.2934	5.73	0.7584
	(9.0)	4	0.0963	+ 1.285	+ 0.009	29 28	1 57.9	316 44	21 6.9	+ 0.9858	+ 1.2928	- 5.83	- 0.7660
	5	0.0990	1.293	+ 0.004	29 15	1 57.0	315 43	21 2.9	0.9859	1.2922	5.93	0.7734	
	6	0.1017	1.300	0.000	29 12	1 56.8	314 42	20 58.8	0.9865	1.2915	6.03	0.7805	
	7	0.1045	1.308	- 0.005	29 9	1 56.6	313 41	20 54.7	0.9873	1.2908	6.13	0.7873	
	8	0.1072	1.315	0.009	29 8	1 56.5	312 39	20 50.6	0.9884	1.2901	6.22	0.7939	
	9	0.1099	+ 1.323	- 0.011	29 5	1 56.3	311 38	20 46.5	+ 0.9900	+ 1.2894	- 6.31	- 0.8003	
	10	0.1127	1.331	0.013	29 4	1 56.3	310 36	20 42.4	0.9921	1.2887	6.40	0.8064	
	11	0.1154	1.339	0.013	29 1	1 56.1	309 34	20 38.3	0.9947	1.2880	6.49	0.8123	
	12	0.1182	1.346	0.011	28 52	1 55.5	308 32	20 34.1	0.9974	1.2874	6.58	0.8180	
	13	0.1209	1.353	- 0.004	28 40	1 54.7	307 30	20 30.0	1.0002	1.2868	6.66	0.8235	
	14	0.1236	+ 1.360	0.000	28 22	1 53.5	306 28	20 25.9	+ 1.0026	+ 1.2862	- 6.74	- 0.8288	
	15	0.1264	+ 1.367	+ 0.004	28 1	1 52.1	305 26	20 21.7	+ 1.0047	+ 1.2856	- 6.82	- 0.8339	

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f'		f''		G		H		Log g .	Log h .	i	Log i
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
		y	s	s	°	'	°	'	h	m				
Feb.	15	0.1264	+ 1.367	+ 0.004	28	1	1 52.1	305 26	20 21.7	+ 1.0047	+ 1.2856	- 6.82	- 0.8339	
	16	0.1291	1.374	0.007	27	36	1 50.4	304 24	20 17.6	1.0064	1.2849	6.90	0.8388	
	17	0.1318	1.381	0.008	27	16	1 49.1	303 21	20 13.4	1.0075	1.2843	6.97	0.8435	
	18	0.1346	1.387	0.007	26	58	1 47.9	302 18	20 9.2	1.0080	1.2837	7.05	0.8480	
	19	0.1373	1.394	+ 0.003	26	44	1 46.9	301 14	20 4.9	1.0080	1.2831	7.12	0.8524	
	(10.0)	20	0.1401	+ 1.400	- 0.002	26	39	1 46.6	300 11	20 0.7	+ 1.0080	+ 1.2825	- 7.19	- 0.8566
	21	0.1428	1.407	0.007	26	41	1 46.7	299 8	19 56.5	1.0086	1.2819	7.25	0.8605	
	22	0.1455	1.413	0.009	26	43	1 46.9	298 5	19 52.3	1.0099	1.2814	7.32	0.8644	
	23	0.1483	1.419	0.010	26	49	1 47.3	297 1	19 48.1	1.0121	1.2809	7.38	0.8680	
	24	0.1510	1.425	0.007	26	50	1 47.3	295 58	19 43.9	1.0148	1.2804	7.44	0.8715	
h	25	0.1537	+ 1.431	- 0.003	26	46	1 47.1	294 54	19 39.6	+ 1.0176	+ 1.2799	- 7.50	- 0.8748	
	26	0.1565	1.437	+ 0.003	26	34	1 46.3	293 50	19 35.3	1.0206	1.2794	7.55	0.8780	
	27	0.1592	1.443	0.009	26	20	1 45.3	292 45	19 31.0	1.0233	1.2789	7.60	0.8810	
	28	0.1620	1.449	0.013	26	2	1 44.1	291 41	19 26.7	1.0251	1.2784	7.65	0.8838	
	Mar.	1	0.1647	1.455	0.015	25	43	1 42.9	290 37	19 22.5	1.0264	1.2779	7.70	0.8865
	2	0.1674	+ 1.461	+ 0.014	25	29	1 41.9	289 33	19 18.2	+ 1.0272	+ 1.2775	- 7.75	- 0.8891	
	3	0.1702	1.467	0.011	25	15	1 41.0	288 28	19 13.9	1.0271	1.2771	7.79	0.8915	
	4	0.1729	1.473	0.006	25	8	1 40.5	287 24	19 9.6	1.0269	1.2767	7.83	0.8937	
	5	0.1757	1.478	+ 0.001	25	6	1 40.4	286 19	19 5.3	1.0268	1.2764	7.87	0.8958	
	h	6	0.1784	1.484	- 0.004	25	5	1 40.3	285 15	19 1.0	1.0268	1.2760	7.90	0.8978
(11.0)	7	0.1811	+ 1.489	- 0.009	25	10	1 40.7	284 10	18 56.7	+ 1.0273	+ 1.2757	- 7.94	- 0.8996	
	8	0.1839	1.494	0.012	25	18	1 41.2	283 5	18 52.3	1.0282	1.2754	7.97	0.9013	
	9	0.1866	1.499	0.013	25	23	1 41.5	282 0	18 48.0	1.0298	1.2752	8.00	0.9029	
	10	0.1893	1.505	0.013	25	25	1 41.7	280 56	18 43.7	1.0318	1.2749	8.02	0.9043	
	11	0.1921	1.510	0.010	25	25	1 41.7	279 51	18 39.4	1.0340	1.2747	8.04	0.9055	
	12	0.1948	+ 1.516	- 0.007	25	22	1 41.5	278 46	18 35.1	+ 1.0365	+ 1.2745	- 8.07	- 0.9067	
	13	0.1976	1.521	- 0.002	25	13	1 40.9	277 41	18 30.7	1.0391	1.2743	8.09	0.9077	
	14	0.2003	1.527	+ 0.002	24	59	1 39.9	276 36	18 26.4	1.0410	1.2741	8.10	0.9085	
	15	0.2030	1.532	0.007	24	42	1 38.8	275 31	18 22.1	1.0426	1.2740	8.12	0.9092	
	16	0.2058	1.538	0.007	24	28	1 37.9	274 26	18 17.7	1.0436	1.2739	8.13	0.9099	
h	17	0.2085	+ 1.543	+ 0.007	24	15	1 37.0	273 21	18 13.4	+ 1.0443	+ 1.2738	- 8.13	- 0.9104	
	18	0.2113	1.548	+ 0.004	24	8	1 36.5	272 16	18 9.1	1.0444	1.2738	8.14	0.9107	
	19	0.2140	1.553	0.000	24	5	1 36.3	271 10	18 4.7	1.0445	1.2737	8.14	0.9109	
	20	0.2167	1.558	- 0.005	24	11	1 36.7	270 5	18 0.3	1.0447	1.2737	8.15	0.9110	
	h	21	0.2195	1.563	0.008	24	21	1 37.4	269 1	17 56.1	1.0458	1.2737	8.14	0.9109
	(12.0)	22	0.2222	+ 1.569	- 0.010	24	31	1 38.1	267 56	17 51.7	+ 1.0474	+ 1.2737	- 8.14	- 0.9107
	23	0.2249	1.574	0.008	24	36	1 38.4	266 51	17 47.4	1.0498	1.2738	8.14	0.9104	
	24	0.2277	1.578	- 0.004	24	38	1 38.5	265 46	17 43.1	1.0525	1.2739	8.13	0.9100	
	25	0.2304	1.585	+ 0.001	24	36	1 38.4	264 42	17 38.8	1.0554	1.2740	8.12	0.9094	
	26	0.2331	1.590	0.007	24	29	1 37.9	263 37	17 34.5	1.0583	1.2741	8.10	0.9087	
h	27	0.2359	+ 1.595	+ 0.013	24	18	1 37.2	262 33	17 30.2	+ 1.0605	+ 1.2743	- 8.09	- 0.9079	
	28	0.2386	1.601	0.015	24	9	1 36.6	261 28	17 25.9	1.0620	1.2745	8.07	0.9069	
	29	0.2414	1.606	0.015	24	0	1 36.0	260 24	17 21.6	1.0628	1.2747	8.05	0.9058	
	30	0.2441	1.611	0.013	23	50	1 35.3	259 19	17 17.3	1.0630	1.2749	8.03	0.9046	
	31	0.2468	1.616	0.009	23	46	1 35.1	258 15	17 13.0	1.0631	1.2751	8.00	0.9032	
	Apr.	1	0.2496	+ 1.622	+ 0.003	23	46	1 35.1	257 11	17 8.7	+ 1.0631	+ 1.2754	- 7.97	- 0.9017
	2	0.2523	+ 1.627	- 0.003	23	52	1 35.5	256 7	17 4.5	+ 1.0633	+ 1.2757	- 7.94	- 0.9001	

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f'		f''		G		H		Log g .	Log h .	i	Log i .
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
		y	s	s	°	'	h	m	°	'	h	m	
Apr.	1	0.2496	+ 1.622	+ 0.003	23 46	1 35.1	257 11	17 8.7	+ 1.0631	+ 1.2754	- 7.97	- 0.9017	
	2	0.2523	1.627	- 0.003	23 52	1 35.5	256 7	17 4.5	1.0633	1.2757	7.94	0.9001	
	3	0.2550	1.633	0.007	24 1	1 36.1	255 3	17 0.2	1.0642	1.2760	7.91	0.8983	
	4	0.2578	1.638	0.010	24 13	1 36.9	254 0	16 56.0	1.0655	1.2764	7.88	0.8965	
	5	0.2605	1.643	0.011	24 24	1 37.6	252 56	16 51.7	1.0670	1.2767	7.84	0.8944	
	(13.0)	6	0.2633	+ 1.649	- 0.012	24 33	1 38.2	251 53	16 47.5	+ 1.0690	+ 1.2771	- 7.80	- 0.8923
	7	0.2660	1.655	0.010	24 38	1 38.5	250 50	16 43.3	1.0712	1.2774	7.76	0.8900	
	8	0.2687	1.661	0.008	24 39	1 38.6	249 47	16 39.1	1.0735	1.2778	7.72	0.8875	
	9	0.2715	1.667	- 0.004	24 37	1 38.5	248 44	16 34.9	1.0759	1.2782	7.67	0.8849	
	10	0.2742	1.673	0.000	24 31	1 38.1	247 41	16 30.7	1.0783	1.2787	7.62	0.8822	
	11	0.2770	+ 1.679	+ 0.003	24 21	1 37.4	246 38	16 26.5	+ 1.0802	+ 1.2791	- 7.57	- 0.8793	
	12	0.2797	1.685	0.006	24 12	1 36.8	245 36	16 22.4	1.0817	1.2796	7.52	0.8763	
	13	0.2824	1.691	0.005	24 5	1 36.3	244 34	16 18.3	1.0830	1.2801	7.47	0.8732	
	14	0.2852	1.697	+ 0.003	24 0	1 36.0	243 32	16 14.1	1.0837	1.2806	7.41	0.8698	
	15	0.2879	1.703	0.000	23 58	1 35.9	242 30	16 10.0	1.0841	1.2811	7.35	0.8664	
h	16	0.2906	+ 1.709	- 0.005	24 2	1 36.1	241 29	16 5.9	+ 1.0847	+ 1.2817	- 7.29	- 0.8628	
	17	0.2934	1.715	0.010	24 14	1 36.9	240 27	16 1.8	1.0858	1.2823	7.23	0.8590	
	18	0.2961	1.721	0.011	24 26	1 37.7	239 26	15 57.7	1.0875	1.2829	7.16	0.8551	
	19	0.2989	1.727	0.011	24 36	1 38.4	238 24	15 53.6	1.0898	1.2834	7.10	0.8510	
	20	0.3016	1.734	0.007	24 44	1 38.9	237 23	15 49.5	1.0927	1.2839	7.03	0.8467	
	(14.0)	21	0.3043	+ 1.741	- 0.001	24 44	1 38.9	236 22	+ 1.0961	+ 1.2845	- 6.96	- 0.8423	
	22	0.3071	1.748	+ 0.005	24 41	1 38.7	235 22	15 41.5	1.0993	1.2851	6.88	0.8377	
	23	0.3098	1.754	0.012	24 35	1 38.3	234 22	15 37.5	1.1020	1.2857	6.81	0.8329	
	24	0.3125	1.761	0.015	24 27	1 37.8	233 22	15 33.5	1.1041	1.2863	6.73	0.8280	
	25	0.3153	1.768	0.016	24 19	1 37.3	232 22	15 29.5	1.1056	1.2869	6.65	0.8229	
	26	0.3180	+ 1.775	+ 0.014	24 14	1 36.9	231 22	15 25.5	+ 1.1068	+ 1.2875	- 6.57	- 0.8175	
	27	0.3208	1.782	0.010	24 12	1 36.8	230 22	15 21.5	1.1073	1.2881	6.49	0.8120	
	28	0.3235	1.789	0.007	24 11	1 36.7	229 23	15 17.5	1.1079	1.2887	6.40	0.8063	
	29	0.3262	1.796	+ 0.002	24 14	1 36.9	228 24	15 13.6	1.1086	1.2893	6.32	0.8005	
	30	0.3290	1.803	- 0.004	24 20	1 37.3	227 25	15 9.7	1.1095	1.2900	6.23	0.7944	
May	1	0.3317	+ 1.811	- 0.007	24 29	1 37.9	226 27	15 5.8	+ 1.1109	+ 1.2906	- 6.14	- 0.7881	
	2	0.3344	1.818	0.010	24 40	1 38.7	225 28	15 1.9	1.1127	1.2912	6.05	0.7815	
	3	0.3372	1.825	0.011	24 48	1 39.2	224 30	14 58.0	1.1147	1.2918	5.95	0.7748	
	4	0.3399	1.834	0.011	24 55	1 39.7	223 32	14 54.1	1.1171	1.2925	5.86	0.7678	
	5	0.3427	1.842	0.010	25 1	1 40.1	222 34	14 50.3	1.1197	1.2931	5.76	0.7606	
	h	6	0.3454	+ 1.849	- 0.005	25 0	1 40.0	221 36	14 46.4	+ 1.1224	+ 1.2938	- 5.66	- 0.7532
	(15.0)	7	0.3481	1.857	0.000	24 55	1 39.7	220 38	14 42.5	1.1249	1.2944	5.56	0.7455
	8	0.3509	1.865	+ 0.004	24 46	1 39.1	219 41	14 38.7	1.1274	1.2950	5.46	0.7375	
	9	0.3536	1.873	0.007	24 37	1 38.5	218 43	14 34.9	1.1295	1.2956	5.36	0.7293	
	10	0.3564	1.881	0.008	24 28	1 37.9	217 46	14 31.1	1.1309	1.2963	5.26	0.7208	
	11	0.3591	+ 1.890	+ 0.004	24 22	1 37.5	216 49	14 27.3	+ 1.1318	+ 1.2969	- 5.15	- 0.7119	
	12	0.3618	1.898	0.000	24 19	1 37.3	215 53	14 23.5	1.1327	1.2975	5.04	0.7028	
	13	0.3646	1.906	- 0.003	24 21	1 37.4	214 57	14 19.8	1.1337	1.2980	4.93	0.6933	
	14	0.3673	1.914	0.008	24 30	1 38.0	214 0	14 16.0	1.1351	1.2986	4.82	0.6836	
	15	0.3700	1.923	0.012	24 40	1 38.7	213 4	14 12.3	1.1368	1.2992	4.71	0.6735	
	16	0.3728	+ 1.931	- 0.011	24 48	1 39.2	212 8	14 8.5	+ 1.1392	+ 1.2998	- 4.60	- 0.6630	
	17	0.3755	+ 1.940	- 0.009	24 52	1 39.5	211 12	14 4.8	+ 1.1420	+ 1.3003	- 4.49	- 0.6522	

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f'	f''	G		H		$\log g.$	$\log h.$	i	$\log i.$	
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.					
		y	s	s	°	h m	°	h m			"		
May	17	0.3755	+ 1.940	- 0.009	24 52	1 39.5	211 12	14 4.8	+ 1.1420	+ 1.3003	- 4.49	- 0.6522	
	18	0.3783	1.949	- 0.004	24 54	1 39.6	210 17	14 1.1	1.1452	1.3009	4.37	0.6409	
	19	0.3810	1.958	+ 0.002	24 50	1 39.3	209 21	13 57.4	1.1483	1.3015	4.26	0.6292	
	20	0.3837	1.967	0.008	24 44	1 38.9	208 26	13 53.7	1.1515	1.3020	4.14	0.6171	
	21	0.3865	1.976	0.013	24 35	1 38.3	207 31	13 50.1	1.1541	1.3026	4.02	0.6045	
	(16.0)	22	0.3892	+ 1.985	+ 0.016	24 25	1 37.7	206 36	13 46.4	+ 1.1560	+ 1.3031	- 3.90	- 0.5914
		23	0.3919	1.994	0.015	24 15	1 37.0	205 41	13 42.7	1.1572	1.3036	3.78	0.5778
		24	0.3947	2.003	0.013	24 9	1 36.6	204 47	13 39.1	1.1583	1.3041	3.66	0.5637
		25	0.3974	2.012	0.009	24 8	1 36.5	203 52	13 35.5	1.1592	1.3046	3.54	0.5489
		26	0.4002	2.021	+ 0.004	24 10	1 36.7	202 58	13 31.9	1.1602	1.3050	3.42	0.5335
		27	0.4029	+ 2.030	- 0.002	24 12	1 36.8	202 3	13 28.2	+ 1.1610	+ 1.3055	- 3.29	- 0.5174
28		0.4056	2.040	0.006	24 15	1 37.0	201 9	13 24.6	1.1624	1.3059	3.17	0.5006	
29		0.4084	2.050	0.009	24 19	1 37.3	200 15	13 21.0	1.1641	1.3063	3.04	0.4829	
30		0.4111	2.059	0.010	24 25	1 37.7	199 21	13 17.4	1.1663	1.3067	2.91	0.4644	
31		0.4138	2.069	0.009	24 28	1 37.9	198 27	13 13.8	1.1687	1.3071	2.79	0.4450	
June	1	0.4166	+ 2.078	- 0.007	24 29	1 37.9	197 34	13 10.3	+ 1.1712	+ 1.3074	- 2.66	- 0.4245	
	2	0.4193	2.088	- 0.003	24 28	1 37.9	196 40	13 6.7	1.1738	1.3078	2.53	0.4029	
	3	0.4220	2.098	0.000	24 23	1 37.5	195 46	13 3.1	1.1763	1.3081	2.40	0.3800	
	4	0.4248	2.108	+ 0.004	24 15	1 37.0	194 53	12 59.5	1.1787	1.3084	2.27	0.3558	
	5	0.4275	2.118	0.006	24 6	1 36.4	194 0	12 56.0	1.1808	1.3087	2.14	0.3299	
	(17.0)	6	0.4302	+ 2.128	+ 0.007	23 57	1 35.8	193 7	12 52.5	+ 1.1825	+ 1.3090	- 2.01	- 0.3024
		7	0.4330	2.138	0.005	23 48	1 35.2	192 14	12 48.9	1.1839	1.3093	1.87	0.2728
		8	0.4358	2.148	+ 0.003	23 41	1 34.7	191 21	12 45.4	1.1849	1.3096	1.74	0.2409
		9	0.4385	2.158	- 0.002	23 38	1 34.5	190 28	12 41.9	1.1857	1.3098	1.61	0.2054
		10	0.4412	2.168	0.006	23 39	1 34.6	189 35	12 38.3	1.1868	1.3100	1.47	0.1688
		11	0.4440	+ 2.178	- 0.010	23 42	1 34.8	188 42	12 34.8	+ 1.1883	+ 1.3101	- 1.34	- 0.1275
12		0.4467	2.189	0.013	23 45	1 35.0	187 49	12 31.3	1.1901	1.3103	1.21	0.0817	
13		0.4494	2.199	0.012	23 48	1 35.2	186 57	12 27.8	1.1924	1.3105	1.07	0.0304	
14		0.4522	2.209	0.007	23 49	1 35.3	186 4	12 24.3	1.1954	1.3107	0.94	9.9721	
15		0.4549	2.219	- 0.001	23 47	1 35.1	185 11	12 20.7	1.1984	1.3108	0.80	9.9046	
h (18.0)	16	0.4576	+ 2.229	+ 0.005	23 42	1 34.8	184 18	12 17.2	+ 1.2014	+ 1.3109	- 0.67	- 9.8245	
	17	0.4604	2.239	0.012	23 31	1 34.1	183 26	12 13.7	1.2040	1.3110	0.53	9.7260	
	18	0.4631	2.249	0.016	23 17	1 33.1	182 33	12 10.2	1.2058	1.3111	0.40	9.5984	
	19	0.4659	2.259	0.016	23 6	1 32.4	181 41	12 6.7	1.2071	1.3111	0.26	9.4167	
	20	0.4686	2.270	0.013	22 57	1 31.8	180 48	12 3.2	1.2082	1.3111	- 0.13	- 9.0983	
	21	0.4713	+ 2.280	+ 0.010	22 50	1 31.3	179 56	11 59.7	+ 1.2092	+ 1.3111	+ 0.01	+ 8.0115	
	22	0.4741	2.291	+ 0.004	22 45	1 31.0	179 3	11 56.2	1.2100	1.3111	0.15	9.1640	
	23	0.4768	2.301	0.000	22 44	1 30.9	178 11	11 52.7	1.2108	1.3111	0.28	9.4494	
	24	0.4796	2.311	- 0.005	22 45	1 31.0	177 18	11 49.2	1.2120	1.3110	0.42	9.6200	
	25	0.4823	2.321	0.009	22 49	1 31.3	176 26	11 45.7	1.2135	1.3109	0.55	9.7421	
	26	0.4850	+ 2.331	- 0.011	22 52	1 31.5	175 33	11 42.2	+ 1.2151	+ 1.3109	+ 0.69	+ 9.8372	
July	27	0.4878	2.341	0.010	22 53	1 31.5	174 41	11 38.7	1.2171	1.3108	0.82	9.9151	
	28	0.4905	2.351	0.008	22 51	1 31.4	173 48	11 35.2	1.2191	1.3107	0.96	9.9820	
	29	0.4932	2.361	0.005	22 48	1 31.2	172 56	11 31.7	1.2215	1.3105	1.09	0.0380	
	30	0.4960	2.371	- 0.001	22 42	1 30.8	172 3	11 28.2	1.2237	1.3104	1.23	0.0883	
	1	0.4987	+ 2.380	+ 0.003	22 33	1 30.2	171 10	11 24.7	+ 1.2257	+ 1.3102	+ 1.36	+ 0.1334	
	2	0.5015	+ 2.390	+ 0.007	22 22	1 29.5	170 17	11 21.1	+ 1.2277	+ 1.3100	+ 1.49	+ 0.1740	

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f'		f''		G		H		Log $g.$	Log $h.$	i	Log $i.$
		In Time.	In Time	In Arc.	In Time	In Arc.	In Time.						
July	1	0.4987	+ 2.380	+ 0.003	22 33	1 30.2	171 10	11 24.7	+ 1.2257	+ 1.3102	+ 1.36	+ 0.1334	
	2	0.5015	2.390	0.007	22 22	1 29.5	170 17	11 21.1	1.2277	1.3100	1.49	0.1740	
	3	0.5042	2.400	0.000	22 11	1 28.7	169 25	11 17.7	1.2293	1.3098	1.63	0.2110	
	4	0.5069	2.410	0.009	22 0	1 28.0	168 32	11 14.1	1.2305	1.3096	1.76	0.2451	
	5	0.5097	2.420	0.007	21 51	1 27.4	167 39	11 10.6	1.2315	1.3093	1.89	0.2765	
	h (19.0)	6	0.5124	+ 2.430	+ 0.002	21 44	1 26.9	166 46	11 7.1	+ 1.2321	+ 1.3090	+ 2.02	+ 0.3058
	7	0.5152	2.440	0.004	21 40	1 26.7	165 53	11 3.5	1.2326	1.3087	2.15	0.3330	
	8	0.5179	2.450	0.008	21 40	1 26.7	165 0	11 0.0	1.2335	1.3084	2.28	0.3586	
	9	0.5206	2.460	0.012	21 42	1 26.8	164 7	10 56.5	1.2347	1.3081	2.41	0.3826	
	10	0.5234	2.470	0.014	21 46	1 27.1	163 14	10 52.9	1.2364	1.3078	2.54	0.4052	
	11	0.5261	+ 2.479	0.009	21 44	1 26.9	162 20	10 49.3	+ 1.2388	+ 1.3074	+ 2.67	+ 0.4266	
	12	0.5288	2.489	0.004	21 41	1 26.7	161 27	10 45.8	1.2413	1.3070	2.80	0.4469	
	13	0.5316	2.498	+ 0.003	21 34	1 26.3	160 33	10 42.2	1.2436	1.3066	2.92	0.4662	
	14	0.5343	2.508	0.009	21 23	1 25.5	159 40	10 38.7	1.2458	1.3062	3.05	0.4846	
	15	0.5370	2.517	0.013	21 11	1 24.7	158 46	10 35.1	1.2477	1.3058	3.18	0.5020	
	16	0.5398	+ 2.526	+ 0.015	20 59	1 23.9	157 52	10 31.5	+ 1.2489	+ 1.3054	+ 3.30	+ 0.5187	
	17	0.5425	2.535	0.015	20 46	1 23.1	156 58	10 27.9	1.2497	1.3050	3.42	0.5347	
	18	0.5453	2.545	0.012	20 36	1 22.4	156 4	10 24.3	1.2504	1.3045	3.55	0.5499	
	19	0.5480	2.554	0.007	20 30	1 22.0	155 10	10 20.7	1.2508	1.3040	3.67	0.5646	
	20	0.5507	2.563	+ 0.001	20 27	1 21.8	154 16	10 17.1	1.2513	1.3036	3.79	0.5787	
h (20.0)	21	0.5535	+ 2.572	- 0.004	20 25	1 21.7	153 21	10 13.4	+ 1.2520	+ 1.3031	+ 3.91	+ 0.5922	
	22	0.5562	2.581	0.007	20 24	1 21.6	152 27	10 9.8	1.2529	1.3026	4.03	0.6051	
	23	0.5590	2.590	0.009	20 24	1 21.6	151 32	10 6.1	1.2541	1.3020	4.15	0.6176	
	24	0.5617	2.599	0.010	20 26	1 21.7	150 37	10 2.5	1.2555	1.3015	4.26	0.6296	
	25	0.5644	2.608	0.009	20 26	1 21.7	149 42	9 58.8	1.2571	1.3009	4.38	0.6412	
	26	0.5672	+ 2.617	- 0.008	20 23	1 21.5	148 47	9 55.1	+ 1.2587	+ 1.3004	+ 4.49	+ 0.6524	
	27	0.5699	2.625	0.003	20 18	1 21.2	147 51	9 51.4	1.2605	1.2999	4.60	0.6631	
	28	0.5726	2.634	+ 0.001	20 9	1 20.6	146 56	9 47.7	1.2623	1.2993	4.71	0.6735	
	29	0.5754	2.642	0.005	19 57	1 19.8	146 0	9 44.0	1.2637	1.2987	4.82	0.6835	
	30	0.5781	2.651	0.008	19 45	1 19.0	145 4	9 40.3	1.2650	1.2981	4.93	0.6933	
	31	0.5809	+ 2.659	+ 0.008	19 34	1 18.3	144 8	9 36.5	+ 1.2659	+ 1.2975	+ 5.04	+ 0.7026	
	Aug.	1	0.5836	2.668	0.005	19 25	1 17.7	143 12	9 32.8	1.2665	1.2969	5.15	0.7117
		2	0.5863	2.676	+ 0.001	19 18	1 17.2	142 16	9 29.1	1.2669	1.2963	5.25	0.7204
		3	0.5891	2.684	- 0.004	19 13	1 16.9	141 20	9 25.3	1.2671	1.2957	5.35	0.7289
		4	0.5918	2.692	0.008	19 12	1 16.8	140 23	9 21.5	1.2676	1.2950	5.46	0.7370
	h (21.0)	5	0.5946	+ 2.700	- 0.012	19 13	1 16.9	139 26	9 17.7	+ 1.2684	+ 1.2944	+ 5.56	+ 0.7450
6		0.5973	2.707	0.012	19 14	1 16.9	138 29	9 13.9	1.2695	1.2938	5.66	0.7525	
7		0.6000	2.715	0.010	19 15	1 17.0	137 32	9 10.1	1.2713	1.2933	5.75	0.7600	
8		0.6028	2.722	- 0.005	19 14	1 16.9	136 34	9 6.3	1.2732	1.2927	5.85	0.7672	
9		0.6055	2.730	+ 0.002	19 9	1 16.6	135 37	9 2.5	1.2752	1.2921	5.94	0.7741	
10		0.6082	+ 2.737	+ 0.008	19 0	1 16.0	134 39	8 58.6	+ 1.2770	+ 1.2914	+ 6.04	+ 0.7808	
11		0.6110	2.745	0.012	18 49	1 15.3	133 41	8 54.7	1.2784	1.2908	6.13	0.7873	
12		0.6137	2.752	0.015	18 35	1 14.3	132 43	8 50.9	1.2793	1.2901	6.22	0.7936	
13		0.6165	2.759	0.014	18 24	1 13.6	131 45	8 47.0	1.2798	1.2895	6.30	0.7996	
14		0.6192	2.766	0.011	18 15	1 13.0	130 46	8 43.1	1.2801	1.2889	6.39	0.8055	
15		0.6219	+ 2.773	+ 0.006	18 11	1 12.7	129 47	8 39.1	+ 1.2803	+ 1.2883	+ 6.48	+ 0.8112	
16		0.6247	+ 2.780	+ 0.001	18 9	1 12.6	128 48	8 35.2	+ 1.2805	+ 1.2876	+ 6.56	+ 0.8166	

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FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		f'	f''	G		H		$\log g.$	$\log h.$	i	$\log i.$	
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.					
		s	s	c	h m	o	h m					
Aug	16	0.6247	+ 2.780	+ 0.001	18 0	1 12.6	128 48	8 35.2	+ 1.2805	+ 1.2876	+ 6.56 + 0.8166	
	17	0.6274	2.787	- 0.004	18 8	1 12.5	127 49	8 31.3	1.2807	1.2870	6.64 0.8219	
	18	0.6301	2.794	0.008	18 10	1 12.7	126 50	8 27.3	1.2812	1.2864	6.71 0.8270	
	19	0.6329	2.801	0.012	18 12	1 12.8	125 51	8 23.4	1.2819	1.2858	6.79 0.8319	
	20	0.6356	2.808	0.013	18 14	1 12.9	124 51	8 19.4	1.2829	1.2852	6.87 0.8367	
	(22.0)	21	0.6384	+ 2.814	- 0.012	18 14	1 12.9	123 51	8 15.4	+ 1.2841	+ 1.2846 + 6.94 + 0.8413	
	22	0.6411	2.820	0.010	18 12	1 12.8	122 51	8 11.4	1.2854	1.2840	7.01 0.8457	
	23	0.6438	2.826	- 0.005	18 7	1 12.5	121 51	8 7.4	1.2868	1.2834	7.08 0.8499	
	24	0.6466	2.832	0.000	18 0	1 12.0	120 50	8 3.3	1.2881	1.2829	7.14 0.8540	
	25	0.6493	2.837	+ 0.004	17 52	1 11.5	119 50	7 59.3	1.2892	1.2823	7.21 0.8579	
h	26	0.6520	+ 2.845	+ 0.005	17 43	1 10.9	118 49	7 55.3	+ 1.2903	+ 1.2818	+ 7.27 + 0.8617	
	27	0.6548	2.851	0.007	17 35	1 10.3	117 48	7 51.2	1.2911	1.2813	7.33 0.8653	
	28	0.6575	2.857	0.007	17 28	1 9.9	116 47	7 47.1	1.2917	1.2808	7.39 0.8688	
	29	0.6603	2.863	+ 0.003	17 21	1 9.4	115 45	7 43.0	1.2917	1.2803	7.45 0.8721	
	30	0.6630	2.869	- 0.002	17 18	1 9.2	114 44	7 38.9	1.2918	1.2798	7.50 0.8753	
	31	0.6657	+ 2.875	- 0.007	17 19	1 9.3	113 42	7 34.8	+ 1.2920	+ 1.2793	+ 7.55 + 0.8783	
	Sept.	1	0.6685	2.880	0.009	17 21	1 9.4	112 41	7 30.7	1.2925	1.2789	7.60 0.8812
	2	0.6712	2.886	0.010	17 24	1 9.6	111 39	7 26.6	1.2934	1.2784	7.65 0.8839	
	3	0.6739	2.891	0.009	17 27	1 9.8	110 37	7 22.5	1.2945	1.2780	7.70 0.8865	
	4	0.6767	2.897	- 0.005	17 29	1 9.9	109 35	7 18.3	1.2959	1.2776	7.74 0.8890	
h	(23.0)	5	0.6794	+ 2.902	+ 0.002	17 27	1 9.8	108 32	+ 1.2976	+ 1.2772	+ 7.78 + 0.8913	
	6	0.6822	2.908	0.008	17 21	1 9.4	107 30	7 10.0	1.2993	1.2768	7.82 0.8935	
	7	0.6849	2.914	0.012	17 13	1 8.9	106 27	7 5.8	1.3005	1.2765	7.86 0.8956	
	8	0.6876	2.920	0.014	17 4	1 8.3	105 24	7 1.6	1.3012	1.2761	7.90 0.8975	
	9	0.6904	2.925	0.014	16 55	1 7.7	104 21	6 57.4	1.3017	1.2758	7.93 0.8993	
	10	0.6931	+ 2.931	+ 0.012	16 47	1 7.1	103 18	6 53.2	+ 1.3020	+ 1.2755	+ 7.96 + 0.9010	
	11	0.6959	2.936	0.009	16 44	1 6.9	102 15	6 49.0	1.3021	1.2752	7.99 0.9025	
	12	0.6986	2.941	+ 0.003	16 44	1 6.9	101 12	6 44.8	1.3019	1.2749	8.01 0.9039	
	13	0.7013	2.946	- 0.003	16 47	1 7.1	100 8	6 40.5	1.3019	1.2747	8.04 0.9052	
	14	0.7041	2.951	0.009	16 50	1 7.3	99 5	6 36.3	1.3022	1.2745	8.06 0.9064	
h	15	0.7068	+ 2.956	- 0.010	16 54	1 7.6	98 1	6 32.1	+ 1.3029	+ 1.2741	+ 8.08 + 0.9074	
	16	0.7095	2.961	0.012	16 57	1 7.8	96 58	6 27.9	1.3037	1.2742	8.10 0.9083	
	17	0.7123	2.966	0.011	17 1	1 8.1	95 54	6 23.6	1.3045	1.2740	8.11 0.9090	
	18	0.7150	2.972	0.010	17 3	1 8.2	94 50	6 19.3	1.3054	1.2739	8.12 0.9097	
	19	0.7178	2.977	0.007	17 2	1 8.1	93 46	6 15.1	1.3065	1.2738	8.13 0.9102	
	20	0.7205	+ 2.982	- 0.003	16 59	1 7.9	92 42	6 10.8	+ 1.3077	+ 1.2737	+ 8.14 + 0.9106	
	(0.0)	21	0.7232	2.987	+ 0.001	16 54	1 7.6	91 38	6 6.5	1.3089	1.2737	8.14 0.9108
	22	0.7260	2.992	0.003	16 49	1 7.3	90 34	6 2.3	1.3101	1.2737	8.15 0.9110	
	23	0.7287	2.997	0.007	16 42	1 6.8	89 30	5 58.0	1.3109	1.2737	8.15 0.9110	
	24	0.7315	3.002	0.007	16 36	1 6.4	88 26	5 53.7	1.3113	1.2737	8.14 0.9108	
h	25	0.7342	+ 3.007	+ 0.005	16 32	1 6.1	87 22	5 49.5	+ 1.3115	+ 1.2738	+ 8.14 + 0.9106	
	26	0.7369	3.012	+ 0.001	16 32	1 6.1	86 18	5 45.2	1.3116	1.2738	8.13 0.9102	
	27	0.7397	3.017	- 0.004	16 33	1 6.2	85 14	5 40.9	1.3118	1.2739	8.12 0.9097	
	28	0.7424	3.023	0.010	16 38	1 6.5	84 10	5 36.7	1.3119	1.2740	8.11 0.9091	
	29	0.7451	3.028	0.012	16 43	1 6.9	83 6	5 32.4	1.3126	1.2742	8.10 0.9083	
	30	0.7479	+ 3.033	- 0.011	16 50	1 7.3	82 2	5 28.1	+ 1.3136	+ 1.2743	+ 8.08 + 0.9074	
	Oct.	1	0.7506	+ 3.038	- 0.008	16 55	1 7.7	80 57	+ 1.3150	+ 1.2745	+ 8.06 + 0.9064	

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f'		f''		G		H		Log g .	Log h .	i	Log i .	
			In Time.	s	In Time.	s	In Arc.	In Time.	In Arc.	In Time.					
		y	s	s	s	° ' "	h m	° ' "	h m				"		
Oct.	1	0.7506	+ 3.038	- 0.008	16 55	1 7.7	80 57	5 23.8	+ 1.3150	+ 1.2745	+ 8.06	+ 0.9064			
	2	0.7534	3.043	- 0.001	16 58	1 7.9	79 53	5 19.5	1.3167	1.2747	8.04	0.9052			
	3	0.7561	3.048	+ 0.005	16 56	1 7.7	78 49	5 15.3	1.3182	1.2749	8.01	0.9039			
	4	0.7588	3.053	0.011	16 51	1 7.4	77 45	5 11.0	1.3196	1.2752	7.99	0.9025			
	h	5	0.7616	3.059	0.014	16 43	1 6.9	76 41	5 6.7	1.3207	1.2755	7.96	0.9010		
	(1.0)	6	0.7643	+ 3.064	+ 0.017	16 38	1 6.5	75 37	5 2.5	+ 1.3215	+ 1.2758	+ 7.93	+ 0.8993		
	7	0.7670	3.070	0.015	16 35	1 6.3	74 33	4 58.2	1.3220	1.2762	7.90	0.8975			
	8	0.7698	3.075	0.011	16 34	1 6.3	73 29	4 53.9	1.3223	1.2765	7.86	0.8955			
	9	0.7725	3.081	+ 0.006	16 34	1 6.3	72 25	4 49.7	1.3222	1.2769	7.82	0.8934			
	10	0.7753	3.086	0.000	16 36	1 6.4	71 21	4 45.4	1.3222	1.2772	7.78	0.8911			
	11	0.7780	+ 3.092	- 0.006	16 41	1 6.7	70 18	4 41.2	+ 1.3224	+ 1.2776	+ 7.74	+ 0.8887			
	12	0.7807	3.097	0.009	16 48	1 7.2	69 14	4 36.9	1.3229	1.2780	7.69	0.8862			
	13	0.7835	3.103	0.011	16 58	1 7.9	68 11	4 32.7	1.3239	1.2784	7.65	0.8835			
	14	0.7862	3.109	0.011	17 3	1 8.2	67 7	4 28.5	1.3250	1.2789	7.60	0.8807			
	15	0.7889	3.115	0.010	17 6	1 8.4	66 4	4 24.3	1.3261	1.2794	7.55	0.8777			
	16	0.7917	+ 3.121	- 0.007	17 8	1 8.5	65 1	4 20.1	+ 1.3273	+ 1.2799	+ 7.49	+ 0.8745			
	17	0.7944	3.127	0.004	17 10	1 8.7	63 58	4 15.9	1.3286	1.2805	7.43	0.8713			
	18	0.7972	3.133	- 0.001	17 9	1 8.6	62 55	4 11.7	1.3298	1.2810	7.37	0.8678			
	19	0.7999	3.139	+ 0.002	17 6	1 8.4	61 53	4 7.5	1.3310	1.2815	7.31	0.8642			
	h	20	0.8026	3.145	0.005	17 2	1 8.1	60 50	4 3.3	1.3320	1.2820	7.25	0.8604		
(2.0)	21	0.8054	+ 3.151	+ 0.007	16 58	1 7.9	59 47	3 59.1	+ 1.3330	+ 1.2826	+ 7.19	+ 0.8565			
22	0.8081	3.157	0.005	16 56	1 7.7	58 44	3 54.9	1.3335	1.2831	7.12	0.8523				
23	0.8108	3.164	+ 0.001	16 57	1 7.8	57 42	3 50.8	1.3340	1.2837	7.05	0.8480				
24	0.8136	3.170	- 0.005	17 0	1 8.0	56 40	3 46.7	1.3342	1.2843	6.98	0.8436				
25	0.8163	3.177	0.009	17 4	1 8.3	55 38	3 42.5	1.3346	1.2849	6.90	0.8389				
26	0.8191	+ 3.183	- 0.010	17 10	1 8.7	54 36	3 38.4	+ 1.3355	+ 1.2855	+ 6.82	+ 0.8341				
27	0.8218	3.190	0.011	17 17	1 9.1	53 35	3 34.3	1.3366	1.2862	6.74	0.8290				
28	0.8245	3.197	0.010	17 24	1 9.6	52 33	3 30.2	1.3380	1.2868	6.66	0.8238				
29	0.8273	3.204	- 0.005	17 27	1 9.8	51 32	3 26.1	1.3398	1.2875	6.58	0.8184				
30	0.8300	3.211	+ 0.001	17 29	1 9.9	50 30	3 22.0	1.3417	1.2881	6.50	0.8128				
Nov.	31	0.8327	+ 3.218	+ 0.008	17 28	1 9.9	49 29	3 17.9	+ 1.3435	+ 1.2888	+ 6.41	+ 0.8070			
	1	0.8355	3.226	0.013	17 24	1 9.6	48 28	3 13.9	1.3450	1.2894	6.32	0.8009			
	2	0.8382	3.233	0.016	17 19	1 9.3	47 27	3 9.8	1.3462	1.2900	6.23	0.7946			
	3	0.8410	3.240	0.017	17 14	1 8.9	46 26	3 5.7	1.3470	1.2906	6.14	0.7881			
	h	4	0.8437	3.247	0.015	17 11	1 8.7	45 26	3 1.7	1.3476	1.2913	6.04	0.7814		
	(3.0)	5	0.8464	+ 3.255	+ 0.009	17 11	1 8.7	44 26	2 57.7	+ 1.3479	+ 1.2919	+ 5.95	+ 0.7744		
	6	0.8492	3.262	+ 0.003	17 15	1 9.0	43 26	2 53.7	1.3481	1.2926	5.85	0.7671			
	7	0.8519	3.270	- 0.003	17 21	1 9.4	42 26	2 49.7	1.3489	1.2932	5.75	0.7596			
	8	0.8547	3.278	0.006	17 29	1 9.9	41 26	2 45.7	1.3496	1.2939	5.65	0.7518			
	9	0.8574	3.286	0.009	17 35	1 10.3	40 26	2 41.7	1.3505	1.2945	5.54	0.7438			
	10	0.8601	+ 3.294	- 0.010	17 39	1 10.6	39 26	2 37.7	+ 1.3516	+ 1.2952	+ 5.44	+ 0.7354			
	11	0.8629	3.302	0.009	17 43	1 10.9	38 26	2 33.7	1.3531	1.2958	5.33	0.7267			
	12	0.8656	3.310	0.007	17 46	1 11.1	37 27	2 29.8	1.3546	1.2964	5.22	0.7177			
	13	0.8683	3.319	0.004	17 48	1 11.2	36 28	2 25.9	1.3561	1.2970	5.11	0.7084			
	14	0.8711	3.327	- 0.001	17 47	1 11.1	35 29	2 21.9	1.3576	1.2977	5.00	0.6988			
	15	0.8738	+ 3.336	+ 0.002	17 45	1 11.0	34 30	2 18.0	+ 1.3591	+ 1.2983	+ 4.88	+ 0.6888			
	16	0.8766	+ 3.344	+ 0.005	17 42	1 10.8	33 31	2 14.1	+ 1.3604	+ 1.2989	+ 4.77	+ 0.6783			

INDEPENDENT STAR-NUMBERS, 1901.

529

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f'		f''		G		H		Log g .	Log h .	i	Log i .	
			In Time.		In Time.		In Arc.	In Time.	In Arc.	In Time.					
		y	s	s	$^{\circ}$	$h\ m$	$^{\circ}$	$h\ m$							
Nov.	16	0.8766	+ 3.344	+ 0.005	17 42	1 10.8	33 31	2 14.1	+ 1.3604	+ 1.2989	+ 4.77	+ 0.6783			
	17	0.8793	3.353	0.006	17 37	1 10.5	32 32	2 10.1	1.3615	1.2996	4.65	0.6676			
	18	0.8820	3.361	0.005	17 34	1 10.3	31 33	2 6.2	1.3623	1.3002	4.53	0.6563			
	h 19	0.8848	3.370	+ 0.002	17 34	1 10.3	30 35	2 2.3	1.3630	1.3008	4.41	0.6447			
	(4.0) 20	0.8875	3.379	- 0.002	17 34	1 10.3	29 37	1 58.5	1.3635	1.3013	4.29	0.6326			
	21	0.8902	+ 3.388	- 0.007	17 37	1 10.5	28 39	1 54.6	+ 1.3642	+ 1.3019	+ 4.17	+ 0.6200			
	22	0.8930	3.396	0.009	17 42	1 10.8	27 41	1 50.7	1.3652	1.3024	4.04	0.6068			
	23	0.8957	3.405	0.011	17 47	1 11.1	26 43	1 46.9	1.3664	1.3030	3.92	0.5932			
	24	0.8985	3.414	0.008	17 52	1 11.5	25 45	1 43.0	1.3681	1.3035	3.79	0.5789			
	25	0.9012	3.424	- 0.004	17 55	1 11.7	24 48	1 39.2	1.3696	1.3040	3.66	0.5640			
	26	0.9039	+ 3.434	+ 0.001	17 56	1 11.7	23 50	1 35.3	+ 1.3718	+ 1.3045	+ 3.53	+ 0.5484			
	27	0.9067	3.444	0.007	17 54	1 11.6	22 53	1 31.5	1.3738	1.3050	3.40	0.5321			
	28	0.9094	3.453	0.013	17 50	1 11.3	21 55	1 27.7	1.3755	1.3055	3.27	0.5150			
	29	0.9121	3.463	0.016	17 43	1 10.9	20 58	1 23.9	1.3769	1.3060	3.14	0.4971			
	30	0.9149	3.473	0.016	17 37	1 10.5	20 1	1 20.1	1.3783	1.3064	3.01	0.4782			
	Dec.	1	0.9176	+ 3.483	+ 0.014	17 32	1 10.1	19 4	1 16.3	+ 1.3793	+ 1.3068	+ 2.87	+ 0.4584		
		2	0.9204	3.493	0.010	17 31	1 10.1	18 7	1 12.5	1.3798	1.3072	2.74	0.4374		
		3	0.9231	3.503	0.007	17 34	1 10.3	17 10	1 8.7	1.3803	1.3076	2.60	0.4152		
		4	0.9258	3.513	+ 0.002	17 35	1 10.3	16 14	1 4.9	1.3809	1.3080	2.46	0.3917		
		h 5	0.9286	3.524	- 0.004	17 38	1 10.5	15 17	1 1.1	1.3818	1.3083	2.33	0.3667		
(5.0) 6		0.9313	+ 3.534	- 0.006	17 42	1 10.8	14 21	0 57.4	+ 1.3829	+ 1.3086	+ 2.19	+ 0.3399			
7		0.9341	3.544	0.008	17 45	1 11.0	13 24	0 53.6	1.3840	1.3089	2.05	0.3113			
8		0.9368	3.554	0.007	17 47	1 11.1	12 28	0 49.9	1.3855	1.3092	1.91	0.2805			
9		0.9395	3.564	0.005	17 49	1 11.3	11 31	0 46.1	1.3870	1.3095	1.77	0.2472			
10		0.9423	3.574	- 0.001	17 48	1 11.2	10 35	0 42.3	1.3886	1.3097	1.63	0.2110			
	11	0.9450	+ 3.584	+ 0.001	17 46	1 11.1	9 38	0 38.5	+ 1.3901	+ 1.3100	+ 1.48	+ 0.1713			
	12	0.9477	3.594	0.004	17 42	1 10.8	8 42	0 34.8	1.3916	1.3102	1.34	0.1274			
	13	0.9505	3.605	0.007	17 36	1 10.4	7 46	0 31.1	1.3929	1.3104	1.20	0.0785			
	14	0.9532	3.615	0.008	17 29	1 9.9	6 50	0 27.3	1.3940	1.3106	1.05	0.0231			
	15	0.9560	3.626	0.007	17 23	1 9.5	5 54	0 23.6	1.3950	1.3107	0.91	9.9595			
	16	0.9587	+ 3.637	+ 0.004	17 21	1 9.4	4 58	0 19.9	+ 1.3958	+ 1.3108	+ 0.77	+ 9.8848			
	17	0.9614	3.648	- 0.001	17 20	1 9.3	4 2	0 16.1	1.3964	1.3109	0.62	9.7944			
	18	0.9642	3.658	0.005	17 19	1 9.3	3 5	0 12.3	1.3971	1.3110	0.48	9.6797			
	19	0.9669	3.669	0.010	17 22	1 9.5	2 9	0 8.6	1.3980	1.3111	0.33	9.5235			
	h 20	0.9696	3.679	0.013	17 25	1 9.7	1 13	0 4.9	1.3990	1.3111	0.19	9.2766			
(6.0) 21	0.9724	+ 3.690	- 0.012	17 27	1 9.8	0 17	0 1.1	+ 1.4004	+ 1.3111	+ 0.04	+ 8.6461				
22	0.9751	3.700	0.009	17 29	1 9.9	359 21	23 57.4	1.4020	1.3111	- 0.11	- 9.0024				
23	0.9779	3.711	- 0.003	17 28	1 9.9	358 25	23 53.7	1.4039	1.3111	0.25	9.3898				
24	0.9806	3.721	+ 0.004	17 25	1 9.7	357 29	23 49.9	1.4059	1.3110	0.39	9.5911				
25	0.9833	3.732	0.011	17 18	1 9.2	356 33	23 46.2	1.4076	1.3110	0.53	9.7281				
26	0.9861	+ 3.742	+ 0.014	17 10	1 8.7	355 37	23 42.5	+ 1.4090	+ 1.3109	- 0.68	- 9.8319				
27	0.9888	3.753	0.015	17 2	1 8.1	354 40	23 38.7	1.4101	1.3108	0.82	9.9156				
28	0.9915	3.763	0.015	16 56	1 7.7	353 44	23 34.9	1.4110	1.3106	0.97	9.9856				
29	0.9943	3.774	0.012	16 51	1 7.4	352 48	23 31.2	1.4117	1.3105	1.11	0.0458				
30	0.9970	3.784	0.007	16 50	1 7.3	351 52	23 27.5	1.4122	1.3103	1.25	0.0985				
31	0.9998	+ 3.795	+ 0.003	16 49	1 7.3	350 55	23 23.7	+ 1.4127	+ 1.3101	- 1.40	- 0.1453				
32	1.0025	+ 3.806	- 0.003	16 51	1 7.4	349 59	23 19.9	+ 1.4136	+ 1.3099	- 1.54	- 0.1874				

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date.	<i>α</i> Ursæ Minoris (<i>Polaris</i>).		Mean Solar Date.	51 Cephei (H _ε v.).		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Jan.	h m 1 23	+88 47	Jan.	h m 6 54	+87 12	Jan.	h m 18 3	+86 36	Jan.	h m 19 19	+88 59
	s	"		s	"		s	"		s	"
0.3	34.31	9.2	0.5	48.87	7.8	0.9	44.57	50.2	1.0	51.38	33.5
1.3	33.49	9.4	1.5	49.01	8.1	1.9	44.55	49.9	2.0	50.92	33.2
2.3	32.67	9.5	2.5	49.16	8.3	2.9	44.52	49.6	3.0	50.44	32.9
3.3	31.78	9.6	3.5	49.30	8.6	3.9	44.49	49.3	4.0	49.94	32.6
4.3	30.84	9.8	4.5	49.45	8.9	4.9	44.49	48.9	5.0	49.47	32.3
5.3	29.84	9.9	5.5	49.59	9.3	5.9	44.50	48.6	6.0	49.06	32.0
6.3	28.78	10.0	6.5	49.68	9.6	6.9	44.54	48.2	7.0	48.69	31.6
7.3	27.69	10.1	7.5	49.76	10.0	7.9	44.60	47.8	8.0	48.42	31.3
8.3	26.58	10.2	8.5	49.80	10.3	8.9	44.69	47.5	9.0	48.25	30.9
9.3	25.47	10.2	9.5	49.79	10.7	9.9	44.80	47.1	10.0	48.15	30.5
10.2	24.41	10.2	10.5	49.79	11.0	10.9	44.92	46.8	11.0	48.11	30.2
11.2	23.38	10.3	11.5	49.76	11.3	11.9	45.04	46.5	12.0	48.12	29.9
12.2	22.43	10.3	12.5	49.72	11.6	12.9	45.15	46.2	13.0	48.10	29.6
13.2	21.52	10.3	13.5	49.69	11.9	13.9	45.27	45.9	13.9	48.09	29.3
14.2	20.63	10.3	14.5	49.69	12.2	14.9	45.36	45.6	14.9	48.04	29.0
15.2	19.76	10.3	15.5	49.67	12.5	15.9	45.44	45.4	15.9	47.92	28.7
16.2	18.84	10.3	16.5	49.70	12.8	16.9	45.52	45.1	16.9	47.78	28.4
17.2	17.91	10.4	17.5	49.70	13.1	17.9	45.60	44.8	17.9	47.63	28.1
18.2	16.93	10.4	18.5	49.72	13.4	18.9	45.69	44.4	18.9	47.51	27.8
19.2	15.87	10.4	19.5	49.73	13.7	19.9	45.80	44.1	19.9	47.43	27.4
20.2	14.78	10.5	20.4	49.70	14.1	20.9	45.94	43.7	20.9	47.42	27.1
21.2	13.67	10.5	21.4	49.65	14.4	21.9	46.10	43.4	21.9	47.50	26.7
22.2	12.54	10.4	22.4	49.57	14.8	22.9	46.29	43.0	22.9	47.65	26.4
23.2	11.45	10.4	23.4	49.46	15.1	23.9	46.48	42.7	23.9	47.88	26.0
24.2	10.39	10.4	24.4	49.32	15.4	24.9	46.68	42.4	24.9	48.17	25.7
25.2	9.40	10.3	25.4	49.19	15.7	25.9	46.88	42.2	25.9	48.46	25.4
26.2	8.48	10.2	26.4	49.05	16.0	26.9	47.07	41.9	26.9	48.76	25.1
27.2	7.60	10.1	27.4	48.93	16.2	27.9	47.25	41.7	27.9	49.02	24.8
28.2	6.77	10.1	28.4	48.79	16.5	28.9	47.43	41.4	28.9	49.25	24.5
29.2	5.93	10.0	29.4	48.69	16.8	29.9	47.59	41.2	29.9	49.44	24.3
30.2	5.06	10.0	30.4	48.59	17.0	30.9	47.76	40.9	30.9	49.62	24.0
31.2	4.14	9.9	31.4	48.50	17.3	31.9	47.94	40.6	31.9	49.80	23.7
32.2	3.17	9.9	32.4	48.39	17.6	32.9	48.12	40.4	32.9	50.03	23.4

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

α Ursæ Minoris (Polaris).			51 Cephei (Hev.).			δ Ursæ Minoris.			λ Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
	h m	° '		h m	° '		h m	° '		h m	° '
Feb.	1 22	+88 47	Feb.	6 54	+87 12	Feb.	18 3	+86 36	Feb.	19 19	+88 59
	s	"		s	"		s	"		s	"
1.2	63.17	9.9	1.4	48.39	17.6	1.9	48.12	40.4	1.9	50.03	23.4
2.2	62.16	9.8	2.4	48.25	17.9	2.9	48.32	40.1	2.9	50.32	23.0
3.2	61.11	9.7	3.4	48.10	18.3	3.9	48.56	39.8	3.9	50.68	22.7
4.2	60.01	9.6	4.4	47.92	18.6	4.9	48.81	39.5	4.9	51.16	22.3
5.2	58.96	9.5	5.4	47.69	18.9	5.9	49.10	39.2	5.9	51.71	22.0
6.2	57.93	9.4	6.4	47.43	19.2	6.9	49.39	38.9	6.9	52.32	21.7
7.2	56.95	9.2	7.4	47.16	19.5	7.9	49.70	38.7	7.9	52.99	21.4
8.2	56.05	9.0	8.4	46.92	19.7	8.9	49.99	38.5	8.9	53.64	21.1
9.2	55.20	8.8	9.4	46.64	20.0	9.9	50.26	38.3	9.9	54.30	20.8
10.2	54.41	8.7	10.4	46.38	20.2	10.9	50.53	38.1	10.9	54.93	20.6
11.2	53.64	8.5	11.4	46.15	20.4	11.9	50.78	37.9	11.9	55.49	20.3
12.2	52.87	8.4	12.4	45.91	20.6	12.9	51.03	37.8	12.9	56.01	20.1
13.2	52.07	8.3	13.4	45.70	20.9	13.9	51.28	37.6	13.9	56.50	19.8
14.2	51.26	8.1	14.4	45.49	21.1	14.9	51.52	37.3	14.9	57.02	19.6
15.1	50.39	8.0	15.4	45.26	21.4	15.9	51.79	37.1	15.9	57.56	19.3
16.1	49.48	7.9	16.4	45.03	21.6	16.8	52.06	36.9	16.9	58.17	19.0
17.1	48.55	7.7	17.4	44.77	21.9	17.8	52.36	36.6	17.9	58.84	18.7
18.1	47.60	7.5	18.4	44.47	22.2	18.8	52.69	36.4	18.9	59.58	18.4
19.1	46.68	7.3	19.4	44.16	22.4	19.8	53.03	36.2	19.9	60.41	18.1
20.1	45.82	7.1	20.4	43.83	22.7	20.8	53.39	36.0	20.9	61.28	17.8
21.1	45.02	6.9	21.4	43.48	22.9	21.8	53.74	35.9	21.9	62.19	17.6
22.1	44.29	6.6	22.4	43.11	23.1	22.8	54.06	35.8	22.9	63.09	17.4
23.1	43.62	6.4	23.4	42.77	23.3	23.8	54.39	35.7	23.9	63.97	17.2
24.1	43.02	6.2	24.3	42.44	23.4	24.8	54.70	35.6	24.9	64.80	17.0
25.1	42.44	5.9	25.3	42.14	23.6	25.8	55.00	35.4	25.9	65.59	16.8
26.1	41.84	5.7	26.3	41.84	23.8	26.8	55.29	35.3	26.9	66.34	16.6
27.1	41.22	5.5	27.3	41.54	23.9	27.8	55.59	35.2	27.9	67.10	16.4
28.1	40.55	5.3	28.3	41.25	24.1	28.8	55.89	35.0	28.9	67.85	16.2
29.1	39.85	5.1	29.3	40.93	24.3	29.8	56.21	34.9	29.9	68.68	16.0

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris (<i>Polaris</i>).		Mean Solar Date.	51 Cephei (HEV.).		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion <i>North</i> .		Right Ascen- sion.	Declina- tion <i>North</i> .		Right Ascen- sion.	Declina- tion <i>North</i> .		Right Ascen- sion.	Declina- tion <i>North</i> .
Mar.	h m	° ' "	Mar.	h m	° ' "	Mar.	h m	° ' "	Mar.	h m	° ' "
	I 22	+88 46	Mar.	6 54	+87 12	Mar.	18 3	+86 36	Mar.	19 20	+88 59
	s	"		s	"		s	"		s	"
1.1	39.85	65.1	1.3	40.93	24.3	1.8	56.21	34.9	1.9	8.68	16.0
2.1	39.10	64.9	2.3	40.59	24.5	2.8	56.54	34.7	2.9	9.55	15.7
3.1	38.33	64.7	3.3	40.24	24.7	3.8	56.90	34.5	3.9	10.50	15.5
4.1	37.57	64.4	4.3	39.84	24.9	4.8	57.29	34.4	4.9	11.55	15.3
5.1	36.86	64.2	5.3	39.44	25.1	5.8	57.69	34.3	5.9	12.66	15.0
6.1	36.20	63.9	6.3	39.01	25.3	6.8	58.08	34.2	6.9	13.79	14.8
7.1	35.60	63.6	7.3	38.57	25.4	7.8	58.48	34.2	7.9	14.97	14.7
8.1	35.09	63.3	8.3	38.13	25.6	8.8	58.87	34.1	8.9	16.13	14.5
9.1	34.63	63.0	9.3	37.72	25.7	9.8	59.22	34.1	9.8	17.23	14.4
10.1	34.22	62.7	10.3	37.32	25.7	10.8	59.57	34.1	10.8	18.29	14.3
11.1	33.84	62.4	11.3	36.93	25.8	11.8	59.91	34.0	11.8	19.29	14.1
12.1	33.43	62.1	12.3	36.57	25.9	12.8	60.23	34.0	12.8	20.25	14.0
13.1	33.02	61.9	13.3	36.20	26.0	13.8	60.56	33.9	13.8	21.21	13.9
14.1	32.57	61.6	14.3	35.84	26.1	14.8	60.88	33.9	14.8	22.17	13.7
15.1	32.07	61.4	15.3	35.46	26.3	15.8	61.23	33.8	15.8	23.15	13.6
16.1	31.56	61.1	16.3	35.07	26.4	16.8	61.59	33.7	16.8	24.22	13.4
17.1	31.03	60.8	17.3	34.67	26.5	17.8	61.97	33.7	17.8	25.34	13.2
18.1	30.53	60.5	18.3	34.24	26.7	18.8	62.37	33.6	18.8	26.53	13.1
19.1	30.08	60.2	19.3	33.78	26.8	19.8	62.77	33.6	19.8	27.76	12.9
20.1	29.69	59.9	20.3	33.31	26.9	20.8	63.17	33.6	20.8	29.03	12.8
21.1	29.37	59.5	21.3	32.85	26.9	21.8	63.56	33.7	21.8	30.28	12.7
22.0	29.12	59.2	22.3	32.39	26.9	22.7	63.93	33.7	22.8	31.52	12.7
23.0	28.94	58.9	23.3	31.95	27.0	23.7	64.29	33.8	23.8	32.70	12.6
24.0	28.80	58.6	24.3	31.54	27.0	24.7	64.63	33.8	24.8	33.83	12.6
25.0	28.67	58.3	25.3	31.16	27.0	25.7	64.94	33.9	25.8	34.92	12.5
26.0	28.52	58.0	26.3	30.77	27.0	26.7	65.27	33.9	26.8	35.95	12.5
27.0	28.36	57.7	27.3	30.39	27.0	27.7	65.59	34.0	27.8	36.99	12.4
28.0	28.15	57.5	28.3	30.02	27.1	28.7	65.92	34.0	28.8	38.05	12.4
29.0	27.91	57.2	29.3	29.63	27.1	29.7	66.27	34.0	29.8	39.16	12.3
30.0	27.64	56.9	30.3	29.20	27.2	30.7	66.63	34.0	30.8	40.35	12.2
31.0	27.37	56.6	31.3	28.75	27.2	31.7	67.02	34.1	31.8	41.60	12.2
32.0	27.12	56.3	32.2	28.29	27.2	32.7	67.41	34.1	32.8	42.91	12.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

α Ursæ Minoris (Polaris).			γ Cephei (HEV.).			δ Ursæ Minoris.			λ Ursæ Minoris.		
Mean Solar Date.	Right Ascension.	Declina- tion North.	Mean Solar Date.	Right Ascension.	Declina- tion North.	Mean Solar Date.	Right Ascension.	Declina- tion North.	Mean Solar Date.	Right Ascension.	Declina- tion North.
Apr.	h m 1 22	+88 46	Apr.	h m 6 54	+87 12	Apr.	h m 18 4	+86 36	Apr.	h m 19 20	+88 50
	s	"		s	"		s	"		s	"
1.0	27.12	56.3	1.2	28.29	27.2	1.7	7.41	34.1	1.8	42.91	12.1
2.0	26.94	55.9	2.2	27.80	27.3	2.7	7.81	34.2	2.8	44.26	12.0
3.0	26.83	55.6	3.2	27.31	27.3	3.7	8.21	34.3	3.8	45.63	12.0
4.0	26.78	55.2	4.2	26.83	27.2	4.7	8.58	34.4	4.8	46.97	12.0
5.0	26.81	54.8	5.2	26.36	27.2	5.7	8.95	34.6	5.8	48.27	12.0
6.0	26.91	54.5	6.2	25.91	27.1	6.7	9.31	34.7	6.8	49.51	12.1
7.0	27.02	54.2	7.2	25.49	27.0	7.7	9.63	34.9	7.8	50.71	12.1
8.0	27.16	53.9	8.2	25.08	26.9	8.7	9.95	35.0	8.8	51.82	12.1
9.0	27.25	53.6	9.2	24.70	26.9	9.7	10.24	35.1	9.8	52.89	12.2
10.0	27.34	53.3	10.2	24.32	26.8	10.7	10.54	35.2	10.8	53.96	12.2
10.9	27.36	53.0	11.2	23.94	26.8	11.7	10.86	35.3	11.8	55.05	12.2
11.9	27.38	52.7	12.2	23.56	26.7	12.7	11.18	35.4	12.8	56.16	12.2
12.9	27.38	52.4	13.2	23.15	26.7	13.7	11.51	35.5	13.8	57.32	12.2
13.9	27.39	52.1	14.2	22.73	26.7	14.7	11.85	35.6	14.8	58.56	12.2
14.9	27.43	51.8	15.2	22.29	26.6	15.7	12.21	35.8	15.8	59.83	12.3
15.9	27.56	51.4	16.2	21.85	26.5	16.7	12.56	35.9	16.8	61.12	12.3
16.9	27.71	51.1	17.2	21.39	26.4	17.7	12.89	36.1	17.7	62.41	12.4
17.9	27.98	50.7	18.2	20.95	26.3	18.7	13.22	36.3	18.7	63.67	12.5
18.9	28.30	50.4	19.2	20.54	26.2	19.7	13.53	36.6	19.7	64.88	12.6
19.9	28.66	50.1	20.2	20.14	26.0	20.7	13.81	36.8	20.7	66.02	12.7
20.9	29.07	49.8	21.2	19.76	25.9	21.7	14.08	37.0	21.7	67.10	12.8
21.9	29.45	49.5	22.2	19.42	25.7	22.7	14.32	37.2	22.7	68.11	13.0
22.9	29.83	49.2	23.2	19.08	25.6	23.7	14.57	37.4	23.7	69.10	13.1
23.9	30.15	49.0	24.2	18.76	25.5	24.7	14.81	37.6	24.7	70.09	13.2
24.9	30.41	48.7	25.2	18.42	25.4	25.7	15.07	37.7	25.7	71.10	13.3
25.9	30.67	48.5	26.2	18.05	25.2	26.7	15.34	37.9	26.7	72.19	13.3
26.9	30.92	48.2	27.2	17.70	25.1	27.7	15.65	38.1	27.7	73.30	13.4
27.9	31.19	47.9	28.2	17.31	25.0	28.7	15.95	38.3	28.7	74.49	13.5
28.9	31.50	47.6	29.2	16.90	24.9	29.6	16.25	38.5	29.7	75.71	13.6
29.9	31.86	47.3	30.2	16.48	24.7	30.6	16.55	38.7	30.7	76.95	13.8
30.9	32.30	46.9	31.2	16.07	24.5	31.6	16.84	39.0	31.7	78.18	13.9
31.9	32.80	46.6									

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

a Ursæ Minoris (Polaris).			51 Cephei (HEV.)			δ Ursæ Minoris.			λ Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
	h m	° '		h m	° '		h m	° '		h m	° '
May	I 22	+88 46	May	6 54	+87 12	May	18 4	+86 36	May	19 21	+88 59
	s	"		s	"		s	"		s	"
1.9	32.80	46.6	1.2	16.07	24.5	1.6	16.84	39.0	1.7	18.18	13.9
2.9	33.35	46.3	2.2	15.68	24.3	2.6	17.12	39.3	2.7	19.36	14.1
3.9	33.97	46.0	3.2	15.31	24.1	3.6	17.36	39.6	3.7	20.47	14.3
4.9	34.60	45.7	4.2	14.96	23.9	4.6	17.59	39.8	4.7	21.50	14.5
5.9	35.20	45.5	5.2	14.64	23.7	5.6	17.80	40.1	5.7	22.47	14.7
6.9	35.78	45.3	6.2	14.33	23.5	6.6	18.00	40.4	6.7	23.36	14.9
7.9	36.33	45.1	7.1	14.06	23.3	7.6	18.18	40.6	7.7	24.21	15.1
8.9	36.84	44.9	8.1	13.78	23.1	8.6	18.37	40.8	8.6	25.09	15.2
9.9	37.34	44.6	9.1	13.51	22.9	9.6	18.56	41.1	9.6	25.96	15.4
10.9	37.80	44.4	10.1	13.23	22.7	10.6	18.77	41.3	10.6	26.88	15.5
11.9	38.29	44.1	11.1	12.93	22.5	11.6	19.00	41.5	11.6	27.85	15.7
12.9	38.83	43.8	12.1	12.60	22.4	12.6	19.22	41.8	12.6	28.85	15.9
13.9	39.44	43.6	13.1	12.29	22.2	13.6	19.44	42.1	13.6	29.87	16.1
14.9	40.13	43.3	14.1	11.97	21.9	14.6	19.66	42.4	14.6	30.89	16.3
15.9	40.87	43.0	15.1	11.65	21.7	15.6	19.86	42.7	15.6	31.88	16.5
16.9	41.68	42.8	16.1	11.35	21.4	16.6	20.04	43.0	16.6	32.82	16.7
17.9	42.52	42.6	17.1	11.08	21.1	17.6	20.19	43.3	17.6	33.68	17.0
18.9	43.36	42.4	18.1	10.84	20.9	18.6	20.33	43.6	18.6	34.46	17.3
19.9	44.17	42.2	19.1	10.62	20.6	19.6	20.44	44.0	19.6	35.18	17.5
20.9	44.95	42.0	20.1	10.42	20.3	20.6	20.54	44.3	20.6	35.84	17.8
21.9	45.67	41.9	21.1	10.23	20.1	21.6	20.65	44.6	21.6	36.50	18.0
22.9	46.35	41.7	22.1	10.05	19.8	22.6	20.76	44.8	22.6	37.15	18.3
23.9	47.01	41.5	23.1	9.87	19.6	23.6	20.87	45.1	23.6	37.85	18.5
24.9	47.67	41.3	24.1	9.65	19.4	24.6	21.00	45.4	24.6	38.56	18.7
25.9	48.34	41.1	25.1	9.42	19.2	25.6	21.15	45.6	25.6	39.35	18.9
26.9	49.09	40.9	26.1	9.19	18.9	26.6	21.30	45.9	26.6	40.18	19.1
27.9	49.88	40.7	27.1	8.94	18.7	27.6	21.45	46.2	27.6	41.02	19.4
28.9	50.75	40.5	28.1	8.68	18.4	28.6	21.59	46.6	28.6	41.88	19.6
29.9	51.68	40.3	29.1	8.45	18.1	29.6	21.72	46.9	29.6	42.66	19.9
30.9	52.64	40.1	30.1	8.23	17.8	30.6	21.82	47.3	30.6	43.40	20.2
31.9	53.62	39.9	31.1	8.05	17.4	31.6	21.89	47.6	31.6	44.06	20.5
32.9	54.59	39.8	32.1	7.89	17.1	32.6	21.94	48.0	32.6	44.61	20.9

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris (Polaris).		Mean Solar Date.	γ Cephei (Hev.).		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
June	h m 1 22	+88 46	June	h m 6 54	+87 12	June	h m 18 4	+86 36	June	h m 19 21	+88 59
	s	"		s	"		s	"		s	"
1.9	54.59	39.8	1.1	7.89	17.1	1.6	21.94	48.0	1.6	44.61	20.9
2.9	55.52	39.6	2.1	7.76	16.8	2.6	21.98	48.3	2.6	45.10	21.2
3.8	56.43	39.5	3.1	7.66	16.5	3.5	22.00	48.6	3.6	45.53	21.5
4.8	57.27	39.4	4.1	7.57	16.2	4.5	22.03	48.9	4.6	45.95	21.8
5.8	58.10	39.3	5.1	7.47	15.9	5.5	22.04	49.2	5.6	46.37	22.0
6.8	58.90	39.2	6.1	7.37	15.7	6.5	22.09	49.5	6.6	46.81	22.3
7.8	59.71	39.1	7.1	7.27	15.4	7.5	22.15	49.8	7.6	47.28	22.5
8.8	60.55	39.0	8.1	7.15	15.2	8.5	22.20	50.1	8.6	47.82	22.8
9.8	61.43	38.8	9.1	7.02	14.9	9.5	22.26	50.4	9.6	48.35	23.1
10.8	62.39	38.7	10.1	6.88	14.6	10.5	22.31	50.8	10.6	48.90	23.4
11.8	63.40	38.5	11.1	6.75	14.3	11.5	22.33	51.1	11.6	49.41	23.7
12.8	64.45	38.4	12.1	6.64	14.0	12.5	22.36	51.5	12.6	49.90	24.0
13.8	65.56	38.3	13.0	6.56	13.6	13.5	22.35	51.8	13.6	50.29	24.3
14.8	66.67	38.2	14.0	6.50	13.3	14.5	22.30	52.2	14.6	50.61	24.7
15.8	67.74	38.2	15.0	6.46	12.9	15.5	22.26	52.5	15.6	50.84	25.1
16.8	68.79	38.2	16.0	6.46	12.6	16.5	22.19	52.9	16.6	51.01	25.4
17.8	69.79	38.1	17.0	6.47	12.2	17.5	22.12	53.2	17.6	51.14	25.7
18.8	70.74	38.1	18.0	6.49	11.9	18.5	22.05	53.5	18.6	51.28	26.0
19.8	71.64	38.1	19.0	6.51	11.6	19.5	21.99	53.8	19.6	51.43	26.3
20.8	72.51	38.0	20.0	6.52	11.4	20.5	21.94	54.1	20.6	51.62	26.6
21.8	73.40	38.0	21.0	6.49	11.1	21.5	21.90	54.4	21.6	51.86	26.9
22.8	74.32	37.9	22.0	6.46	10.8	22.5	21.89	54.7	22.6	52.14	27.2
23.8	75.28	37.8	23.0	6.41	10.5	23.5	21.86	55.0	23.6	52.44	27.5
24.8	76.32	37.7	24.0	6.38	10.2	24.5	21.84	55.3	24.6	52.74	27.8
25.8	77.42	37.6	25.0	6.35	9.9	25.5	21.80	55.7	25.6	53.01	28.1
26.8	78.56	37.6	26.0	6.32	9.5	26.5	21.73	56.1	26.6	53.23	28.5
27.8	79.72	37.6	27.0	6.33	9.2	27.5	21.64	56.4	27.6	53.36	28.9
28.8	80.88	37.6	28.0	6.37	8.8	28.5	21.53	56.8	28.6	53.40	29.2
29.8	82.00	37.6	29.0	6.44	8.4	29.5	21.39	57.1	29.5	53.37	29.6
30.8	83.06	37.6	30.0	6.53	8.1	30.5	21.25	57.4	30.5	53.26	30.0
31.8	84.08	37.7	31.0	6.66	7.8	31.5	21.09	57.7	31.5	53.14	30.3

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

<i>α</i> Ursæ Minoris (<i>Polaris</i>).			51 Cephei (Hæv.)			<i>δ</i> Ursæ Minoris.			<i>λ</i> Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
July	h m 1 23	+88 46	July	h m 6 54	+87 11	July	h m 18 4	+86 36	July	h m 19 21	+88 59
	s	"		s	"		s	"		s	"
1.8	24.08	37.7	1.0	6.66	67.8	1.5	21.09	57.7	1.5	53.14	30.3
2.8	25.05	37.7	2.0	6.76	67.5	2.5	20.94	58.0	2.5	53.00	30.6
3.8	25.99	37.8	3.0	6.87	67.2	3.5	20.80	58.3	3.5	52.87	30.9
4.8	26.91	37.8	3.9	6.98	66.9	4.5	20.67	58.6	4.5	52.76	31.2
5.8	27.85	37.8	4.9	7.07	66.6	5.5	20.55	58.9	5.5	52.70	31.5
6.8	28.83	37.8	5.9	7.14	66.3	6.5	20.44	59.2	6.5	52.68	31.8
7.8	29.87	37.8	6.9	7.22	66.0	7.5	20.33	59.5	7.5	52.67	32.1
8.8	30.95	37.8	7.9	7.31	65.7	8.5	20.20	59.8	8.5	52.63	32.5
9.8	32.09	37.9	8.9	7.38	65.4	9.5	20.04	60.1	9.5	52.56	32.8
10.7	33.28	37.9	9.9	7.49	65.0	10.5	19.87	60.5	10.5	52.41	33.2
11.7	34.47	37.9	10.9	7.63	64.7	11.5	19.68	60.8	11.5	52.20	33.5
12.7	35.64	38.0	11.9	7.80	64.3	12.4	19.46	61.1	12.5	51.89	33.9
13.7	36.76	38.1	12.9	8.00	64.0	13.4	19.24	61.4	13.5	51.51	34.3
14.7	37.84	38.2	13.9	8.20	63.6	14.4	19.00	61.7	14.5	51.09	34.6
15.7	38.84	38.4	14.9	8.43	63.3	15.4	18.76	62.0	15.5	50.66	35.0
16.7	39.79	38.5	15.9	8.65	63.0	16.4	18.53	62.3	16.5	50.21	35.3
17.7	40.71	38.6	16.9	8.86	62.7	17.4	18.30	62.5	17.5	49.80	35.6
18.7	41.62	38.7	17.9	9.05	62.5	18.4	18.10	62.8	18.5	49.46	35.9
19.7	42.57	38.8	18.9	9.23	62.2	19.4	17.92	63.0	19.5	49.15	36.2
20.7	43.54	38.9	19.9	9.40	61.9	20.4	17.73	63.3	20.5	48.87	36.5
21.7	44.54	38.9	20.9	9.56	61.6	21.4	17.55	63.6	21.5	48.60	36.8
22.7	45.61	39.0	21.9	9.71	61.3	22.4	17.35	63.9	22.5	48.32	37.1
23.7	46.72	39.1	22.9	9.89	61.0	23.4	17.14	64.2	23.5	48.00	37.4
24.7	47.85	39.2	23.9	10.10	60.7	24.4	16.89	64.5	24.5	47.59	37.8
25.7	49.00	39.3	24.9	10.32	60.3	25.4	16.62	64.8	25.5	47.12	38.2
26.7	50.10	39.5	25.9	10.57	60.0	26.4	16.34	65.1	26.5	46.56	38.5
27.7	51.17	39.7	26.9	10.86	59.7	27.4	16.04	65.4	27.5	45.93	38.9
28.7	52.17	39.9	27.9	11.15	59.4	28.4	15.74	65.6	28.5	45.24	39.2
29.7	53.11	40.1	28.9	11.46	59.1	29.4	15.44	65.8	29.5	44.53	39.5
30.7	54.02	40.2	29.9	11.77	58.8	30.4	15.14	66.1	30.5	43.84	39.8
31.7	54.89	40.4	30.9	12.07	58.6	31.4	14.86	66.3	31.5	43.17	40.1
32.7	55.75	40.6	31.9	12.37	58.3	32.4	14.60	66.5	32.5	42.56	40.4

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris (Polaris).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Aug.	h m	°	Aug.	h m	°	Aug.	h m	°	Aug.	h m	°
	1 23	+88 46		6 54	+87 11		18 4	+86 37		19 21	+88 59
	s	"		s	"		s	"		s	"
1.7	55.75	40.6	1.9	12.63	58.1	1.4	14.60	6.5	1.5	42.56	40.4
2.7	56.65	40.7	2.9	12.90	57.8	2.4	14.32	6.7	2.4	41.98	40.6
3.7	57.57	40.9	3.9	13.15	57.6	3.4	14.07	6.9	3.4	41.40	40.9
4.7	58.54	41.0	4.9	13.42	57.3	4.4	13.79	7.1	4.4	40.84	41.2
5.7	59.58	41.2	5.9	13.70	57.0	5.4	13.53	7.4	5.4	40.24	41.5
6.7	60.63	41.4	6.9	14.00	56.7	6.4	13.23	7.7	6.4	39.59	41.9
7.7	61.72	41.6	7.9	14.34	56.4	7.4	12.90	7.9	7.4	38.87	42.2
8.7	62.80	41.8	8.9	14.71	56.1	8.4	12.56	8.2	8.4	38.07	42.6
9.7	63.82	42.0	9.9	15.10	55.8	9.4	12.19	8.4	9.4	37.18	42.9
10.7	64.80	42.2	10.9	15.48	55.5	10.4	11.82	8.6	10.4	36.24	43.2
11.7	65.71	42.5	11.9	15.88	55.3	11.4	11.44	8.8	11.4	35.28	43.5
12.7	66.55	42.8	12.9	16.27	55.0	12.4	11.07	9.0	12.4	34.34	43.8
13.7	67.35	43.0	13.9	16.66	54.8	13.4	10.73	9.2	13.4	33.38	44.0
14.7	68.12	43.2	14.9	17.00	54.6	14.4	10.38	9.3	14.4	32.50	44.3
15.6	68.90	43.4	15.9	17.36	54.4	15.4	10.06	9.5	15.4	31.66	44.6
16.6	69.69	43.6	16.9	17.67	54.2	16.3	9.75	9.7	16.4	30.87	44.8
17.6	70.53	43.8	17.9	18.00	53.9	17.3	9.44	9.9	17.4	30.11	45.0
18.6	71.41	44.1	18.9	18.34	53.7	18.3	9.13	10.1	18.4	29.35	45.3
19.6	72.35	44.3	19.9	18.67	53.4	19.3	8.80	10.3	19.4	28.55	45.6
20.6	73.32	44.5	20.9	19.05	53.2	20.3	8.46	10.5	20.4	27.69	45.9
21.6	74.27	44.7	21.9	19.47	52.9	21.3	8.09	10.7	21.4	26.77	46.2
22.6	75.23	45.0	22.9	19.88	52.6	22.3	7.71	10.9	22.4	25.75	46.5
23.6	76.11	45.3	23.9	20.33	52.4	23.3	7.31	11.1	23.4	24.68	46.8
24.6	76.94	45.6	24.8	20.80	52.2	24.3	6.90	11.2	24.4	23.53	47.1
25.6	77.70	45.9	25.8	21.26	52.0	25.3	6.47	11.3	25.4	22.37	47.3
26.6	78.40	46.2	26.8	21.70	51.8	26.3	6.07	11.5	26.4	21.22	47.5
27.6	79.07	46.5	27.8	22.14	51.7	27.3	5.68	11.6	27.4	20.08	47.7
28.6	79.71	46.8	28.8	22.57	51.5	28.3	5.31	11.7	28.4	18.97	47.9
29.6	80.37	47.1	29.8	22.97	51.3	29.3	4.95	11.8	29.4	17.93	48.2
30.6	81.05	47.3	30.8	23.38	51.1	30.3	4.59	11.9	30.4	16.93	48.4
31.6	81.77	47.6	31.8	23.78	50.9	31.3	4.23	12.0	31.4	15.92	48.6
32.6	82.55	47.8	32.8	24.18	50.7	32.3	3.86	12.1	32.4	14.91	48.8

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris (Polaris).		Mean Solar Date.	51 Cephei (HEV.)		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Sept.	h m 1 24	+88 46	Sept.	h m 6 54	+87 11	Sept.	h m 18 3	+86 37	Sept.	h m 19 20	+88 59
	s	"		s	"		s	"		s	"
1.6	22.55	47.8	1.8	24.18	50.7	1.3	63.86	12.1	1.4	74.91	48.8
2.6	23.37	48.1	2.8	24.63	50.5	2.3	63.46	12.3	2.4	73.85	49.1
3.6	24.19	48.4	3.8	25.08	50.3	3.3	63.07	12.4	3.4	72.74	49.3
4.6	25.04	48.8	4.8	25.56	50.1	4.3	62.64	12.6	4.4	71.56	49.6
5.6	25.83	49.1	5.8	26.06	49.9	5.3	62.20	12.7	5.4	70.30	49.8
6.6	26.57	49.4	6.8	26.59	49.7	6.3	61.75	12.8	6.4	68.98	50.1
7.6	27.26	49.8	7.8	27.11	49.6	7.3	61.29	12.9	7.4	67.61	50.3
8.6	27.86	50.1	8.8	27.62	49.4	8.3	60.83	13.0	8.4	66.25	50.5
9.6	28.40	50.5	9.8	28.12	49.3	9.3	60.41	13.0	9.4	64.92	50.7
10.6	28.90	50.8	10.8	28.60	49.2	10.3	59.99	13.1	10.3	63.62	50.8
11.6	29.39	51.1	11.8	29.06	49.1	11.3	59.59	13.1	11.3	62.39	51.0
12.6	29.87	51.4	12.8	29.50	49.0	12.3	59.21	13.1	12.3	61.23	51.1
13.6	30.41	51.7	13.8	29.93	48.8	13.3	58.84	13.2	13.3	60.09	51.3
14.6	30.98	52.0	14.8	30.37	48.7	14.3	58.46	13.3	14.3	58.97	51.4
15.6	31.59	52.3	15.8	30.81	48.5	15.3	58.08	13.3	15.3	57.83	51.6
16.6	32.22	52.6	16.8	31.27	48.4	16.3	57.69	13.4	16.3	56.65	51.8
17.6	32.88	53.0	17.8	31.76	48.2	17.3	57.27	13.5	17.3	55.42	52.0
18.6	33.54	53.3	18.8	32.27	48.1	18.3	56.84	13.6	18.3	54.11	52.2
19.6	34.12	53.7	19.8	32.81	47.9	19.3	56.39	13.6	19.3	52.72	52.4
20.6	34.68	54.1	20.8	33.35	47.8	20.3	55.94	13.7	20.3	51.30	52.6
21.5	35.15	54.5	21.8	33.91	47.7	21.3	55.48	13.7	21.3	49.82	52.7
22.5	35.55	54.8	22.8	34.46	47.6	22.2	55.03	13.7	22.3	48.36	52.9
23.5	35.91	55.2	23.8	34.98	47.6	23.2	54.58	13.6	23.3	46.93	53.0
24.5	36.21	55.6	24.8	35.50	47.5	24.2	54.15	13.6	24.3	45.54	53.1
25.5	36.51	55.9	25.8	35.98	47.5	25.2	53.75	13.6	25.3	44.18	53.2
26.5	36.85	56.2	26.8	36.46	47.4	26.2	53.35	13.6	26.3	42.89	53.3
27.5	37.22	56.6	27.8	36.94	47.4	27.2	52.96	13.6	27.3	41.63	53.4
28.5	37.64	56.9	28.8	37.41	47.3	28.2	52.57	13.6	28.3	40.37	53.5
29.5	38.09	57.2	29.8	37.90	47.2	29.2	52.17	13.6	29.3	39.07	53.6
30.5	38.57	57.6	30.8	38.41	47.1	30.2	51.73	13.6	30.3	37.74	53.7
31.5	39.04	58.0	31.7	38.94	47.0	31.2	51.30	13.6	31.3	36.34	53.9

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris (Polaris).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Oct.	h m 1 24	° ' " +88 46	Oct.	h m 6 54	° ' " +87 11	Oct.	h m 18 3	° ' " +86 37	Oct.	h m 19 19	° ' " +88 59
	s	"		s	"		s	"		s	"
1.5	39.04	58.0	1.7	38.94	47.0	1.2	51.30	13.6	1.3	96.34	53.9
2.5	39.48	58.4	2.7	39.50	46.9	2.2	50.84	13.6	2.3	94.88	54.0
3.5	39.87	58.8	3.7	40.06	46.8	3.2	50.37	13.6	3.3	93.35	54.1
4.5	40.20	59.2	4.7	40.64	46.8	4.2	49.90	13.5	4.3	91.79	54.2
5.5	40.47	59.6	5.7	41.22	46.8	5.2	49.45	13.5	5.3	90.22	54.3
6.5	40.65	60.0	6.7	41.78	46.8	6.2	48.99	13.4	6.3	88.67	54.4
7.5	40.79	60.4	7.7	42.31	46.8	7.2	48.56	13.3	7.3	87.15	54.4
8.5	40.90	60.7	8.7	42.82	46.8	8.2	48.15	13.2	8.3	85.70	54.5
9.5	41.01	61.1	9.7	43.31	46.8	9.2	47.76	13.1	9.3	84.34	54.5
10.5	41.14	61.4	10.7	43.78	46.8	10.2	47.38	13.0	10.3	83.01	54.5
11.5	41.29	61.8	11.7	44.26	46.8	11.2	47.01	12.9	11.3	81.72	54.5
12.5	41.51	62.1	12.7	44.74	46.7	12.2	46.64	12.9	12.3	80.46	54.6
13.5	41.74	62.4	13.7	45.21	46.7	13.2	46.24	12.8	13.3	79.15	54.6
14.5	41.99	62.8	14.7	45.72	46.7	14.2	45.85	12.8	14.3	77.81	54.7
15.5	42.24	63.2	15.7	46.25	46.7	15.2	45.45	12.7	15.3	76.41	54.8
16.5	42.45	63.6	16.7	46.80	46.6	16.2	45.00	12.7	16.2	74.93	54.9
17.5	42.61	64.0	17.7	47.35	46.6	17.2	44.57	12.6	17.2	73.41	54.9
18.5	42.71	64.4	18.7	47.92	46.7	18.2	44.13	12.5	18.2	71.85	54.9
19.5	42.72	64.8	19.7	48.49	46.7	19.2	43.70	12.3	19.2	70.28	54.9
20.5	42.68	65.2	20.7	49.02	46.8	20.2	43.27	12.2	20.2	68.74	54.9
21.5	42.59	65.6	21.7	49.54	46.9	21.2	42.87	12.0	21.2	67.26	54.9
22.5	42.47	66.0	22.7	50.06	46.9	22.2	42.50	11.8	22.2	65.82	54.9
23.5	42.37	66.4	23.7	50.54	47.0	23.2	42.13	11.7	23.2	64.47	54.8
24.5	42.30	66.7	24.7	51.00	47.1	24.2	41.76	11.5	24.2	63.14	54.8
25.5	42.26	67.0	25.7	51.47	47.1	25.2	41.42	11.4	25.2	61.82	54.7
26.5	42.27	67.3	26.7	51.95	47.2	26.2	41.05	11.3	26.2	60.51	54.7
27.5	42.30	67.7	27.7	52.45	47.2	27.2	40.69	11.1	27.2	59.18	54.7
28.4	42.35	68.1	28.7	52.94	47.2	28.1	40.30	11.0	28.2	57.79	54.7
29.4	42.39	68.5	29.7	53.48	47.3	29.1	39.90	10.9	29.2	56.35	54.7
30.4	42.37	68.9	30.7	54.02	47.3	30.1	39.50	10.8	30.2	54.86	54.7
31.4	42.28	69.3	31.7	54.58	47.4	31.1	39.09	10.6	31.2	53.32	54.7
32.4	42.13	69.7	32.7	55.12	47.5	32.1	38.68	10.4	32.2	51.76	54.6

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

α Ursæ Minoris (Polaris).			51 Cephei (HEV.)			δ Ursæ Minoris.			λ Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
Nov.	h m 1 24	+88 47	Nov.	h m 6 54	+87 11	Nov.	h m 18 3	+86 37	Nov.	h m 19 19	+88 59
	s	"		s	"		s	"		s	"
1.4	42.13	9.7	1.7	55.12	47.5	1.1	38.68	10.4	1.2	51.76	54.6
2.4	41.92	10.1	2.7	55.66	47.7	2.1	38.28	10.2	2.2	50.23	54.5
3.4	41.64	10.5	3.7	56.17	47.8	3.1	37.90	10.0	3.2	48.76	54.4
4.4	41.29	10.8	4.7	56.66	47.9	4.1	37.55	9.8	4.2	47.33	54.3
5.4	40.97	11.2	5.7	57.10	48.1	5.1	37.22	9.5	5.2	46.00	54.2
6.4	40.65	11.5	6.6	57.54	48.2	6.1	36.92	9.3	6.2	44.72	54.1
7.4	40.35	11.8	7.6	57.96	48.4	7.1	36.63	9.1	7.2	43.50	54.0
8.4	40.11	12.1	8.6	58.39	48.5	8.1	36.32	8.9	8.2	42.30	53.9
9.4	39.88	12.4	9.6	58.81	48.6	9.1	36.03	8.7	9.2	41.11	53.8
10.4	39.69	12.8	10.6	59.25	48.7	10.1	35.72	8.5	10.2	39.89	53.7
11.4	39.50	13.1	11.6	59.71	48.8	11.1	35.38	8.3	11.2	38.62	53.6
12.4	39.29	13.5	12.6	60.20	48.9	12.1	35.06	8.1	12.2	37.32	53.6
13.4	39.02	13.8	13.6	60.68	49.0	13.1	34.71	7.9	13.2	35.94	53.5
14.4	38.69	14.2	14.6	61.19	49.2	14.1	34.37	7.7	14.2	34.53	53.4
15.4	38.28	14.6	15.6	61.67	49.4	15.1	34.03	7.5	15.2	33.12	53.3
16.4	37.81	14.9	16.6	62.14	49.6	16.1	33.70	7.2	16.2	31.74	53.1
17.4	37.29	15.3	17.6	62.59	49.8	17.1	33.40	6.9	17.2	30.41	52.9
18.4	36.74	15.6	18.6	63.01	50.0	18.1	33.12	6.6	18.2	29.12	52.7
19.4	36.19	15.9	19.6	63.42	50.2	19.1	32.86	6.3	19.2	27.91	52.5
20.4	35.67	16.2	20.6	63.80	50.4	20.1	32.62	6.0	20.1	26.78	52.4
21.4	35.18	16.5	21.6	64.18	50.6	21.1	32.36	5.8	21.1	25.70	52.2
22.4	34.71	16.8	22.6	64.54	50.7	22.1	32.13	5.5	22.1	24.62	52.0
23.4	34.30	17.1	23.6	64.93	50.9	23.1	31.88	5.3	23.1	23.53	51.9
24.4	33.92	17.4	24.6	65.33	51.1	24.1	31.62	5.1	24.1	22.40	51.7
25.4	33.51	17.7	25.6	65.75	51.2	25.1	31.36	4.9	25.1	21.25	51.6
26.4	33.08	18.0	26.6	66.18	51.4	26.1	31.07	4.6	26.1	20.04	51.5
27.4	32.60	18.4	27.6	66.62	51.6	27.1	30.78	4.3	27.1	18.78	51.3
28.4	32.05	18.7	28.6	67.05	51.8	28.1	30.51	4.0	28.1	17.52	51.1
29.4	31.43	19.1	29.6	67.47	52.1	29.1	30.23	3.7	29.1	16.27	50.9
30.4	30.73	19.4	30.6	67.87	52.3	30.1	29.99	3.4	30.1	15.07	50.7
31.4	30.00	19.7	31.6	68.24	52.6	31.1	29.76	3.1	31.1	13.93	50.5

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

α Ursæ Minoris (Polaris).			51 Cephei (Hev.).			δ Ursæ Minoris.			λ Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
Dec.	h m 1 24	+88 47	Dec.	h m 6 55	+87 11	Dec.	h m 18 3	+86 36	Dec.	h m 19 18	+88 59
	s	"		s	"		s	"		s	"
1.4	30.00	19.7	1.6	8.24	52.6	1.1	29.76	63.1	1.1	73.93	50.5
2.4	29.24	19.9	2.6	8.58	52.9	2.1	29.56	62.7	2.1	72.88	50.2
3.3	28.49	20.2	3.6	8.89	53.1	3.1	29.38	62.4	3.1	71.91	49.9
4.3	27.76	20.4	4.6	9.19	53.4	4.0	29.22	62.1	4.1	71.01	49.7
5.3	27.06	20.6	5.6	9.46	53.6	5.0	29.07	61.8	5.1	70.16	49.4
6.3	26.41	20.9	6.6	9.75	53.9	6.0	28.93	61.5	6.1	69.33	49.2
7.3	25.80	21.1	7.6	10.04	54.1	7.0	28.78	61.2	7.1	68.49	49.0
8.3	25.19	21.3	8.6	10.33	54.3	8.0	28.62	61.0	8.1	67.61	48.8
9.3	24.59	21.6	9.6	10.64	54.5	9.0	28.43	60.7	9.1	66.71	48.6
10.3	23.95	21.9	10.6	10.98	54.7	10.0	28.25	60.4	10.1	65.75	48.4
11.3	23.24	22.1	11.6	11.31	55.0	11.0	28.07	60.1	11.1	64.76	48.2
12.3	22.48	22.4	12.5	11.65	55.3	12.0	27.89	59.8	12.1	63.76	47.9
13.3	21.64	22.7	13.5	11.96	55.6	13.0	27.73	59.4	13.1	62.79	47.7
14.3	20.74	22.9	14.5	12.24	55.9	14.0	27.58	59.1	14.1	61.86	47.4
15.3	19.81	23.1	15.5	12.51	56.2	15.0	27.45	58.7	15.1	61.02	47.1
16.3	18.88	23.3	16.5	12.75	56.5	16.0	27.35	58.4	16.1	60.24	46.8
17.3	17.98	23.5	17.5	12.96	56.8	17.0	27.27	58.0	17.1	59.54	46.5
18.3	17.11	23.7	18.5	13.15	57.1	18.0	27.20	57.7	18.1	58.90	46.2
19.3	16.27	23.8	19.5	13.35	57.4	19.0	27.14	57.3	19.1	58.31	45.9
20.3	15.49	24.0	20.5	13.54	57.6	20.0	27.08	57.0	20.1	57.71	45.6
21.3	14.73	24.2	21.5	13.74	57.9	21.0	27.01	56.7	21.1	57.10	45.4
22.3	13.99	24.4	22.5	13.95	58.1	22.0	26.94	56.4	22.1	56.46	45.1
23.3	13.24	24.5	23.5	14.19	58.4	23.0	26.85	56.1	23.1	55.78	44.9
24.3	12.42	24.7	24.5	14.44	58.7	24.0	26.73	55.8	24.1	55.05	44.6
25.3	11.58	24.9	25.5	14.67	59.0	25.0	26.63	55.5	25.1	54.31	44.3
26.3	10.65	25.1	26.5	14.90	59.3	26.0	26.54	55.2	26.0	53.58	44.0
27.3	9.67	25.3	27.5	15.10	59.6	27.0	26.46	54.8	27.0	52.90	43.7
28.3	8.64	25.5	28.5	15.28	59.9	28.0	26.42	54.4	28.0	52.28	43.4
29.3	7.58	25.6	29.5	15.42	60.3	28.9	26.40	54.0	29.0	51.73	43.1
30.3	6.52	25.8	30.5	15.53	60.6	29.9	26.41	53.7	30.0	51.30	42.7
31.3	5.50	25.9	31.5	15.61	61.0	30.9	26.43	53.3	31.0	50.95	42.4
32.3	4.50	25.9	32.5	15.67	61.3	31.9	26.48	53.0	32.0	50.66	42.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	43 Cephei (H.).		μ Hydri.		47 Cephei (H.).		δ Mensæ.		Groombridge 944.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.
	h m 0 55	° ' " +85 43	h m 2 33	° ' " -79 31	h m 2 52	° ' " +79 1	h m 4 24	° ' " -80 26	h m 5 30	° ' " +85 8
	s	"	s	"	s	"	s	"	s	"
Jan. 0.3	17.06	59.2	47.36	105.0	62.18	57.0	44.38	58.7	34.73	53.6
10.3	14.30 ^{2.76}	59.6 ^{0.4}	46.18 ^{1.18}	105.9 ^{0.9}	61.39 ^{0.79}	58.7 ^{1.7}	43.37 ^{1.01}	61.1 ^{2.4}	34.29 ^{0.44}	56.7 ^{3.1}
20.3	11.52 ^{2.78}	59.4 ^{0.2}	44.94 ^{1.24}	106.3 ^{0.4}	60.48 ^{0.91}	59.9 ^{1.2}	42.20 ^{1.17}	63.1 ^{2.0}	33.37 ^{0.92}	59.5 ^{2.8}
30.3	8.83 ^{2.69}	58.5 ^{0.9}	43.67 ^{1.27}	106.0 ^{0.3}	59.48 ^{1.00}	60.5 ^{0.6}	40.89 ^{1.31}	64.6 ^{1.5}	31.99 ^{1.35}	62.0 ^{2.5}
Feb. 9.2	6.35 ^{2.48}	57.0 ^{1.5}	42.42 ^{1.25}	105.2 ^{0.8}	58.44 ^{1.04}	60.5 ^{0.0}	39.47 ^{1.42}	65.5 ^{0.9}	30.22 ^{1.77}	64.1 ^{2.1}
	2.18	2.0	1.21	1.5	1.03	0.6	1.47	0.3	2.10	1.5
19.2	4.17	55.0	41.21	103.7	57.41	59.9	38.00	65.8	28.12	65.6
Mar. 1.2	2.38 ^{1.79}	52.5 ^{2.5}	40.06 ^{1.15}	101.8 ^{1.9}	56.42 ^{0.99}	58.7 ^{1.2}	36.51 ^{1.49}	65.6 ^{0.2}	25.80 ^{2.32}	66.6 ^{1.0}
11.2	1.06 ^{1.32}	49.7 ^{2.8}	39.02 ^{1.04}	99.4 ^{2.4}	55.52 ^{0.90}	57.0 ^{1.7}	35.04 ^{1.47}	64.9 ^{0.7}	23.35 ^{2.45}	67.0 ^{0.4}
21.1	0.81 ^{0.81}	46.7 ^{3.0}	38.11 ^{0.91}	99.6 ^{2.8}	54.75 ^{0.77}	57.0 ^{2.2}	33.62 ^{1.43}	63.6 ^{1.3}	20.89 ^{2.46}	67.8 ^{0.2}
31.1	0.00 ^{0.25}	43.5 ^{3.2}	37.34 ^{0.77}	93.5 ^{3.1}	54.15 ^{0.60}	54.8 ^{2.5}	32.30 ^{1.32}	61.9 ^{1.7}	18.52 ^{2.37}	66.0 ^{0.8}
	0.28	3.1	0.59	3.4	0.41	2.7	1.21	2.2	2.20	1.4
Apr. 10.1	0.28	40.4	36.75	90.1	53.74	49.6	31.09	59.7	16.32	64.6
20.0	1.12 ^{0.84}	37.4 ^{3.0}	36.33 ^{0.42}	86.6 ^{3.5}	53.54 ^{0.20}	46.7 ^{2.9}	30.04 ^{1.05}	57.1 ^{2.6}	14.39 ^{1.93}	62.7 ^{1.9}
30.0	2.47 ^{1.35}	34.7 ^{2.7}	36.10 ^{0.23}	83.0 ^{3.6}	53.55 ^{0.01}	43.7 ^{3.0}	29.15 ^{0.89}	54.3 ^{2.8}	12.80 ^{1.59}	60.5 ^{2.2}
May 10.0	4.27 ^{1.80}	32.2 ^{2.5}	36.07 ^{0.03}	79.3 ^{3.7}	53.79 ^{0.24}	40.9 ^{2.8}	28.47 ^{0.68}	51.2 ^{3.1}	11.60 ^{1.20}	57.9 ^{2.6}
20.0	6.47 ^{2.20}	30.2 ^{2.0}	36.24 ^{0.17}	75.7 ^{3.6}	54.23 ^{0.44}	38.2 ^{2.7}	27.99 ^{0.48}	47.9 ^{3.3}	10.83 ^{0.77}	55.0 ^{2.9}
	2.52	1.5	0.36	3.4	0.64	2.5	0.26	3.4	0.31	3.0
29.9	8.99	28.7	36.60	72.3	54.87	35.7	27.73	44.5	10.52	52.0
June 8.9	11.76 ^{2.77}	27.7 ^{1.0}	37.14 ^{0.54}	69.1 ^{3.2}	55.69 ^{0.82}	33.6 ^{2.1}	27.70 ^{0.03}	41.1 ^{3.4}	10.69 ^{0.17}	48.9 ^{3.1}
18.9	14.69 ^{2.93}	27.3 ^{0.4}	37.86 ^{0.72}	66.2 ^{2.9}	56.66 ^{0.97}	31.9 ^{1.7}	27.89 ^{0.19}	37.7 ^{3.4}	11.30 ^{0.61}	45.9 ^{3.0}
28.9	17.72 ^{3.03}	27.4 ^{0.1}	38.73 ^{0.87}	63.6 ^{2.6}	57.76 ^{1.10}	30.6 ^{1.3}	28.31 ^{0.43}	34.5 ^{3.2}	12.35 ^{1.05}	43.0 ^{2.9}
July 8.8	20.75 ^{3.03}	28.1 ^{0.7}	39.72 ^{0.99}	61.6 ^{2.0}	58.95 ^{1.19}	29.7 ^{0.9}	28.93 ^{0.62}	31.6 ^{2.9}	13.81 ^{1.46}	40.3 ^{2.7}
	2.95	1.2	1.09	1.6	1.27	0.3	0.80	2.7	1.84	2.5
18.8	23.70	29.3	40.81	60.0	60.22	29.4	29.73	28.9	15.65	37.8
28.8	26.54 ^{2.84}	31.0 ^{1.7}	41.96 ^{1.15}	59.0 ^{1.0}	61.52 ^{1.30}	29.6 ^{0.2}	30.70 ^{0.97}	26.7 ^{2.2}	17.82 ^{2.17}	35.7 ^{2.1}
Aug. 7.7	29.18 ^{2.64}	33.2 ^{2.2}	43.14 ^{1.18}	58.6 ^{0.4}	62.83 ^{1.31}	30.2 ^{0.6}	31.81 ^{1.11}	25.0 ^{1.7}	20.27 ^{2.45}	33.9 ^{1.8}
17.7	31.56 ^{2.38}	35.8 ^{2.6}	44.32 ^{1.18}	58.7 ^{0.1}	64.13 ^{1.30}	31.3 ^{1.1}	33.02 ^{1.21}	23.7 ^{1.3}	22.95 ^{2.68}	32.5 ^{1.4}
27.7	33.66 ^{2.10}	38.8 ^{3.0}	45.45 ^{1.13}	59.5 ^{0.8}	65.38 ^{1.25}	32.9 ^{1.6}	34.29 ^{1.27}	23.1 ^{0.6}	25.81 ^{2.86}	31.5 ^{1.0}
	1.76	3.2	1.05	1.4	1.19	1.9	1.30	0.0	2.97	0.5
Sept. 6.7	35.42	42.0	46.50	60.9	66.57	34.8	35.59	23.1	28.78	31.0
16.6	36.81 ^{1.39}	45.5 ^{3.5}	47.43 ^{0.93}	62.8 ^{1.9}	67.68 ^{1.11}	37.1 ^{2.3}	36.86 ^{1.27}	23.7 ^{0.6}	31.82 ^{3.04}	30.9 ^{0.1}
26.6	37.79 ^{0.93}	49.2 ^{3.7}	48.21 ^{0.78}	65.2 ^{2.4}	68.68 ^{1.00}	39.8 ^{2.7}	38.07 ^{1.21}	25.0 ^{1.3}	34.86 ^{3.04}	31.2 ^{0.3}
Oct. 6.6	38.37 ^{0.58}	52.9 ^{3.7}	48.81 ^{0.60}	68.0 ^{2.8}	69.55 ^{0.87}	42.7 ^{2.9}	39.18 ^{1.11}	26.8 ^{1.8}	37.85 ^{2.99}	32.0 ^{0.8}
16.6	38.50 ^{0.13}	56.7 ^{3.8}	49.21 ^{0.40}	71.1 ^{3.1}	70.28 ^{0.73}	45.8 ^{3.1}	40.14 ^{0.96}	29.1 ^{2.3}	40.71 ^{2.86}	33.3 ^{1.3}
	0.32	3.7	0.18	3.3	0.57	3.3	0.78	2.8	2.68	1.7
26.5	38.18	60.4	49.39	74.4	70.85	49.1	40.92	31.9	43.39	35.0
Nov. 5.5	37.41 ^{0.77}	63.9 ^{3.5}	49.35 ^{0.04}	77.7 ^{3.3}	71.25 ^{0.40}	52.5 ^{3.4}	41.48 ^{0.56}	35.0 ^{3.1}	45.84 ^{2.45}	37.1 ^{2.1}
15.5	36.22 ^{1.19}	67.2 ^{3.3}	49.09 ^{0.26}	81.0 ^{3.3}	71.46 ^{0.21}	55.8 ^{3.3}	41.81 ^{0.33}	38.3 ^{3.3}	47.98 ^{2.14}	39.6 ^{2.5}
25.4	34.61 ^{1.61}	70.1 ^{2.9}	48.61 ^{0.48}	84.1 ^{3.1}	71.49 ^{0.03}	59.1 ^{3.3}	41.89 ^{0.08}	41.8 ^{3.5}	49.74 ^{1.76}	42.3 ^{2.7}
Dec. 5.4	32.63 ^{1.98}	72.6 ^{2.5}	47.93 ^{0.68}	86.9 ^{2.8}	71.32 ^{0.17}	62.2 ^{3.1}	41.72 ^{0.43}	45.2 ^{3.4}	51.07 ^{1.33}	45.3 ^{3.0}
	2.31	2.0	0.85	2.3	0.36	2.9	0.43	3.3	0.88	3.1
15.4	30.32	74.6	47.08	89.2	70.96	65.1	41.29	48.5	51.95	48.4
25.4	27.76 ^{2.56}	76.1 ^{1.5}	46.08 ^{1.00}	91.1 ^{1.9}	70.42 ^{0.54}	67.6 ^{2.5}	40.63 ^{0.66}	51.6 ^{3.1}	52.33 ^{0.38}	51.6 ^{3.2}
35.3	25.04 ^{2.72}	76.9 ^{0.8}	44.96 ^{1.12}	92.4 ^{1.3}	69.71 ^{0.71}	69.6 ^{2.0}	39.76 ^{0.87}	54.3 ^{2.7}	52.21 ^{0.12}	54.8 ^{3.2}

(CONSTANTS OF PARIS CONFERENCE.)

543

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Mensæ.		25 Camelopardalis.		ι Draconis (H.).		ζ Chamæleonis.		δ ² Chamæleonis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 6 48	° ' -80 42	h m 7 10	° ' +82 35	h m 9 22	° ' +81 45	h m 9 36	° ' -80 29	h m 10 44	° ' -80 0
	s 6 48	" -80 42	s 7 10	" +82 35	s 9 22	" +81 45	s 9 36	" -80 29	s 10 44	" -80 0
Jan. 0.6	24.81	38.9	30.25	60.2	68.24	29.8	55.49	41.2	57.16	54.9
10.6	24.53 .28	42.5 3.6	30.72 .47	63.1 2.9	69.42 1.18	31.8 2.0	56.25 .76	44.6 3.4	58.22 1.06	57.7 2.8
20.5	24.00 .53	46.0 3.5	30.84 .12	66.1 3.0	70.35 .93	34.2 2.4	56.79 .54	48.3 3.7	59.11 .89	60.9 3.2
30.5	23.24 .76	49.2 3.2	30.62 .22	69.1 3.0	71.00 .65	37.0 2.8	57.09 .30	52.1 3.8	59.81 .70	64.5 3.6
Feb. 9.5	22.26 .98	52.1 2.9	30.06 .56	71.9 2.8	71.35 .35	40.0 3.0	57.16 .07	56.0 3.9	60.30 .49	68.3 3.8
	1.16	2.5	0.87	2.5	.03		.17	3.9	.28	
19.4	21.10	54.6	29.19	74.4	71.38	43.0	56.99	59.9	60.58	72.1
Mar. 1.4	19.79 1.31	56.7 2.1	28.06 1.13	76.5 2.1	71.11 .27	46.0 3.0	56.61 .38	63.7 3.8	60.65 .07	76.1 4.0
11.4	18.38 1.41	58.3 1.6	26.72 1.34	78.2 1.7	70.55 .56	48.8 2.8	56.02 .59	67.2 3.5	60.52 .13	79.9 3.8
21.4	16.89 1.49	59.4 1.1	25.23 1.49	79.3 1.1	69.73 .82	51.4 2.6	55.25 .77	70.5 3.0	60.19 .33	83.7 3.8
31.3	15.37 1.52	60.0 0.6	23.65 1.58	79.8 0.5	68.70 1.03	53.5 2.1	54.32 .93	73.5 3.3	59.69 .50	87.2 3.5
	1.51	0.0	1.59	0.0	1.20	1.7	1.05	2.5	.66	3.2
Apr. 10.3	13.86	60.0	22.06	79.8	67.50	55.2	53.27	76.0	59.03	90.4
20.3	12.39 1.47	59.6 0.4	20.52 1.54	79.2 0.6	66.18 1.32	56.4 1.2	52.11 1.16	78.1 2.1	58.23 .80	93.2 2.8
30.3	11.00 1.39	58.6 1.0	19.08 1.44	78.1 1.1	64.80 1.38	57.1 0.7	50.89 1.22	79.7 1.6	57.31 .92	95.6 2.4
May 10.2	9.72 1.28	57.1 1.5	17.81 1.27	76.4 1.7	63.41 1.39	57.1 0.0	49.62 1.27	80.7 1.0	56.30 1.01	97.6 2.0
20.2	8.57 1.15	55.3 1.8	16.75 1.06	74.4 2.0	62.06 1.35	56.6 0.5	48.34 1.28	81.2 0.5	55.23 1.07	99.1 1.5
	0.98	2.3	0.83	2.5	1.26	1.0	1.26	0.0	1.12	0.9
30.2	7.59	53.0	15.92	71.9	60.80	55.6	47.08	81.2	54.11	100.0
June 9.2	6.80 .79	50.4 2.6	15.35 .57	69.2 2.7	59.66 1.14	54.0 1.6	45.87 1.21	80.7 0.5	52.98 1.13	100.4 0.4
19.1	6.21 .59	47.5 2.9	15.07 .28	66.3 2.9	58.67 .99	52.0 2.0	44.75 1.12	79.6 1.1	51.86 1.12	100.2 0.2
29.1	5.84 .37	44.5 3.0	15.08 .01	63.2 3.1	57.87 .80	49.6 2.4	43.72 1.03	78.0 1.6	50.78 1.08	99.5 0.7
July 9.1	5.70 .14	41.3 3.2	15.37 .29	60.1 3.1	57.27 .60	46.9 2.7	42.84 .88	76.0 2.0	49.78 1.00	98.2 1.3
	.10	3.2	.57	3.1	.38	3.1	.72	2.4	0.90	1.7
19.0	5.80	38.1	15.94	57.0	56.89	43.8	42.12	73.6	48.88	96.5
29.0	6.13 .33	35.0 3.1	16.77 .83	54.0 3.0	56.74 .15	40.6 3.2	41.59 .53	70.9 2.7	48.11 .77	94.3 2.2
Aug. 8.0	6.68 .55	32.1 2.9	17.84 1.07	51.2 2.8	56.81 .07	37.2 3.4	41.26 .33	67.9 3.0	47.50 .61	91.8 2.5
18.0	7.44 .76	29.5 2.6	19.14 1.30	48.6 2.6	57.11 .30	33.8 3.4	41.15 .11	64.8 3.1	47.07 .43	88.9 2.9
27.9	8.39 0.95	27.2 2.3	20.64 1.50	46.2 2.4	57.63 .52	30.4 3.4	41.15 .12	61.7 3.1	46.84 .23	85.9 3.0
	1.11	1.8	1.67	2.0	.74	3.4	.55	3.0	.01	3.1
Sept. 6.9	9.50	25.4	22.31	44.2	58.37	27.0	41.62	58.7	46.83	82.8
16.9	10.74 1.21	24.1 1.3	24.11 1.80	42.6 1.6	59.31 .94	23.8 3.2	42.19 .57	55.8 2.9	47.04 .21	79.7 3.1
26.8	12.06 1.32	23.4 0.7	26.03 1.92	41.3 1.3	60.44 1.13	20.8 3.0	42.99 .80	53.3 2.5	47.48 .44	76.8 2.9
Oct. 6.8	13.43 1.37	23.4 0.0	28.01 1.98	40.5 0.8	61.74 1.30	18.1 2.7	43.08 .99	51.2 2.1	48.14 .66	74.1 2.7
16.8	14.79 1.36	24.0 0.6	30.03 2.02	40.1 0.4	63.19 1.45	15.7 2.4	45.13 1.15	49.6 1.6	49.00 0.86	71.8 2.3
	1.31	1.3	2.01	0.1	1.58	2.0	1.29	1.0	1.04	1.8
26.8	16.10	25.3	32.04	40.2	64.77	13.7	46.42	48.6	50.04	70.0
Nov. 5.7	17.31 1.21	27.1 1.8	33.99 1.95	40.8 0.6	66.44 1.67	12.2 1.5	47.78 1.36	48.2 0.4	51.23 1.19	68.7 1.3
15.7	18.38 1.07	29.5 2.4	35.85 1.86	41.9 1.1	68.17 1.73	11.2 1.0	49.18 1.40	48.4 0.2	52.53 1.30	68.0 0.7
25.7	19.26 0.88	32.4 2.9	37.56 1.71	43.4 1.5	69.91 1.74	10.7 0.5	50.58 1.40	49.4 1.0	53.89 1.36	68.0 0.0
Dec. 5.7	19.92 .66	35.6 3.2	39.08 1.52	45.4 2.0	71.62 1.71	10.8 0.1	51.91 1.33	50.9 1.5	55.26 1.37	68.6 0.6
	.42	3.5	1.28	2.3	1.64	0.7	1.22	2.2	1.34	1.3
15.6	20.34	39.1	40.36	47.7	73.26	11.5	53.13	53.1	56.60	69.9
25.6	20.49 .15	42.8 3.7	41.35 0.99	50.4 2.7	74.76 1.50	12.8 1.3	54.20 1.07	55.8 2.7	57.86 1.26	71.8 1.9
35.6	20.38 1.11	46.4 3.6	42.03 0.68	53.3 2.9	76.08 1.32	14.5 1.7	55.09 0.89	58.9 3.1	59.01 1.15	74.3 2.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Octantis.		β Chamæleontis.		6 Ursæ Min. (B.)		32 ² Camelop. (H.)		δ Octantis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 10 59	° ' 3	h m 12 12	° ' 45	h m 12 13	° ' 14	h m 12 48	° ' 56	h m 13 24	° ' 16
	s	"	s	"	s	"	s	"	s	"
Jan. 0.7	69.19	1.81	35.40	1.22	31.3	76.9	29.1	0.0	54.17	2.98
10.7	71.00	1.54	36.62	1.14	33.0	84.1	29.1	0.7	57.15	2.95
20.7	72.54	1.25	37.76	1.02	35.3	91.0	29.8	1.3	60.10	2.81
30.7	73.79	0.92	38.78	0.88	38.0	97.4	31.1	1.9	62.91	2.63
Feb. 9.6	74.71	0.59	39.66	0.73	41.1	103.0	33.0	2.4	65.54	2.38
19.6	75.30	0.24	40.39	0.56	44.6	107.7	35.4	2.7	67.92	2.09
Mar. 1.6	75.54	0.10	40.95	0.39	48.2	111.2	38.1	3.0	70.01	1.76
11.5	75.44	0.3	41.34	0.22	52.0	113.4	41.1	3.2	71.77	1.49
21.5	75.02	0.73	41.56	0.05	55.8	114.3	44.3	3.2	73.16	1.02
31.5	74.29	1.00	41.61	0.12	59.5	113.9	47.5	3.1	74.18	0.62
Apr. 10.5	73.29	1.24	41.49	0.27	63.2	112.1	50.6	2.8	74.80	0.22
20.4	72.05	1.47	41.22	0.42	66.6	109.1	53.4	2.5	75.02	0.16
30.4	70.58	1.65	40.80	0.54	69.7	105.0	55.9	2.2	74.86	0.56
May 10.4	68.93	1.80	40.26	0.66	72.6	100.0	58.1	1.6	74.30	0.92
20.4	67.13	1.87	39.60	0.76	75.0	94.2	59.7	1.1	73.38	1.27
30.3	65.26	1.93	38.84	0.84	76.9	87.8	60.8	0.6	72.11	1.58
June 9.3	63.33	1.95	38.00	0.91	78.4	81.0	61.4	0.0	70.53	1.84
19.3	61.38	1.89	37.09	0.93	79.4	74.1	61.4	0.6	68.69	2.07
29.2	59.49	1.79	36.16	0.95	79.8	67.2	60.8	1.1	66.62	2.23
July 9.2	57.70	1.65	35.21	0.92	79.6	60.5	59.7	1.7	64.39	2.33
19.2	56.05	1.42	34.29	0.88	78.9	54.1	58.0	2.1	62.06	2.35
29.2	54.63	1.18	33.41	0.80	77.7	48.3	55.9	2.6	59.71	2.30
Aug. 8.1	53.45	0.90	32.61	0.69	76.0	43.1	53.3	2.9	57.41	2.16
18.1	52.55	0.55	31.92	0.55	73.8	38.6	50.4	3.3	55.25	1.96
28.1	52.00	0.19	31.37	0.39	71.2	35.0	47.1	3.5	53.29	1.65
Sept. 7.1	51.81	0.19	30.98	0.21	68.4	32.3	43.6	3.7	51.64	1.29
17.0	52.00	0.58	30.77	0.01	65.4	30.6	39.9	3.8	50.35	0.87
27.0	52.58	0.95	30.76	0.20	62.3	29.9	36.1	3.8	49.48	0.49
Oct. 7.0	53.53	1.31	30.96	0.41	59.3	30.3	32.3	3.8	49.08	0.10
16.9	54.84	1.61	31.37	0.62	56.4	31.7	28.5	3.6	49.18	0.61
26.9	56.45	1.87	31.99	0.80	53.8	34.2	24.9	3.4	49.79	1.11
Nov. 5.9	58.32	2.08	32.79	0.97	51.6	37.7	21.5	3.0	50.90	1.59
15.9	60.40	2.21	33.76	1.11	49.9	42.2	18.5	2.7	52.49	2.00
25.8	62.61	2.24	34.87	1.20	48.7	47.6	15.8	2.2	54.49	2.38
Dec. 5.8	64.85	2.22	36.07	1.26	48.1	53.7	13.6	1.6	56.87	2.64
15.8	67.07	2.11	37.33	1.27	48.2	60.3	12.0	1.0	59.51	2.85
25.8	69.18	1.93	38.60	1.25	48.9	67.4	11.0	0.3	62.36	2.95
35.7	71.11	1.93	39.85	1.3	50.2	74.6	10.7	0.3	65.31	3.1

FIXED STARS, 1901.

545

(CONSTANTS OF PARIS CONFERENCE.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Octantis.		ρ Octantis.		γ Apodis.		ϵ Ursæ Minoris.		σ Octantis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 14 11	° ' " -83 12	h m 15 20	° ' " -84 7	h m 16 18	° ' " -78 40	h m 16 55	° ' " +82 11	h 19	° ' " -89 14
	s	"	s	"	s	"	s	"	m s	"
Jan. 0.9	1.59 2.11	36.0 0.2	22.11 2.26	52.6 1.2	13.18 1.07	16.7 1.8	54.24 0.69	56.4 3.2	0 6.4 04.1	66.6 3.5
10.9	3.70 2.15	35.8 0.5	24.37 2.12	51.4 0.7	14.25 1.19	14.9 1.4	54.93 0.96	53.2 2.8	0 10.5 07.2	63.1 3.3
20.9	5.85 2.13	36.3 1.0	26.70 2.52	50.7 0.1	15.44 1.29	13.5 0.9	55.89 1.20	50.4 2.4	0 17.7 10.0	59.8 3.2
30.8	7.98 2.06	37.3 1.5	29.31 2.55	50.6 0.4	16.73 1.35	12.6 0.4	57.09 1.39	48.0 1.9	0 27.7 12.5	56.6 2.9
Feb. 9.8	10.04 1.94	38.8 2.0	31.86 2.51	51.0 0.9	18.08 1.37	12.2 0.1	58.48 1.53	46.1 1.3	0 40.2 14.6	53.7 2.5
19.8	11.98 1.78	40.8 2.5	34.37 2.42	51.9 1.5	19.45 1.36	12.3 0.5	60.01 1.61	44.8 0.6	0 54.8 16.4	51.2 2.2
Mar. 1.8	13.76 1.58	43.3 2.8	36.70 2.29	53.4 1.8	20.81 1.34	12.8 1.0	61.62 1.62	44.2 0.1	1 11.2 17.7	49.0 1.7
11.7	15.34 1.36	46.1 3.1	39.08 2.11	55.2 2.3	22.15 1.27	13.8 1.4	63.24 1.58	44.3 0.7	1 28.9 18.7	47.3 1.3
21.7	16.70 1.12	49.2 3.3	41.19 1.88	57.5 2.6	23.42 1.20	15.2 1.8	64.82 1.49	45.0 1.3	1 47.6 19.1	46.0 0.8
31.7	17.82 0.86	52.5 3.5	43.07 1.63	60.1 2.9	24.62 1.09	17.0 2.2	66.31 1.33	46.3 1.8	2 6.7 19.2	45.2 0.3
Apr. 10.6	18.68 .59	56.0 3.5	44.70 1.35	63.0 3.1	25.71 0.97	19.2 2.4	67.64 1.14	48.1 2.4	2 25.9 18.9	44.9 0.2
20.6	19.27 .32	59.5 3.5	46.05 1.05	66.1 3.2	26.68 .84	21.6 2.6	68.78 0.91	50.5 2.7	2 44.8 18.2	45.1 0.6
30.6	19.59 .03	63.0 3.4	47.10 0.73	69.3 3.3	27.52 .68	24.2 2.8	69.69 .65	53.2 3.1	3 3.0 17.1	45.7 1.1
May 10.6	19.62 .24	66.4 3.3	47.83 .39	72.6 3.3	28.20 .52	27.0 2.9	70.34 .38	56.3 3.2	3 20.1 15.7	46.8 1.6
20.5	19.38 .51	69.7 3.0	48.22 .04	75.9 3.2	28.72 .35	29.9 3.0	70.72 .10	59.5 3.3	3 35.8 13.9	48.4 1.9
30.5	18.87 0.76	72.7 2.7	48.26 .29	79.1 3.0	29.07 .17	32.9 2.9	70.82 .18	62.8 3.2	3 49.7 11.8	50.3 2.3
June 9.5	18.11 1.00	75.4 2.3	47.97 .62	82.1 2.9	29.24 .02	35.8 2.8	70.64 .45	66.0 3.2	4 1.5 09.4	52.6 2.5
19.5	17.11 1.20	77.7 1.9	47.35 0.93	85.0 2.5	29.22 .20	38.6 2.7	70.19 .71	69.2 3.0	4 10.9 6.8	55.1 2.7
29.4	15.91 1.37	79.6 1.4	46.42 1.22	87.5 2.1	29.02 .37	41.3 2.4	69.48 0.96	72.2 2.7	4 17.7 4.0	57.8 3.0
July 9.4	14.54 1.51	81.0 0.9	45.20 1.46	89.6 1.7	28.65 .54	43.7 2.1	68.52 1.18	74.9 2.3	4 21.7 1.0	60.8 3.0
19.4	13.03 1.59	81.9 0.4	43.74 1.67	91.3 1.2	28.11 .69	45.8 1.7	67.34 1.36	77.2 2.0	4 22.7 1.9	63.8 3.0
29.3	11.44 1.62	82.3 0.2	42.07 1.81	92.5 0.7	27.42 .81	47.5 1.3	65.98 1.53	79.2 1.5	4 20.8 4.9	66.8 2.8
Aug. 8.3	9.82 1.59	82.1 0.8	40.26 1.89	93.2 0.2	26.61 .90	48.8 0.8	64.45 1.65	80.7 1.1	4 15.9 07.6	69.6 2.6
18.3	8.23 1.52	81.3 1.3	38.37 1.92	93.4 0.5	25.71 .97	49.6 0.3	62.80 1.73	81.8 0.5	4 8.3 10.2	72.2 2.3
28.3	6.71 1.36	80.0 1.8	36.45 1.85	92.9 1.0	24.74 .99	49.9 0.3	61.07 1.79	82.3 0.1	3 58.1 12.4	74.5 1.8
Sept. 7.2	5.35 1.17	78.2 2.3	34.60 1.73	91.9 1.5	23.75 .98	49.6 0.8	59.28 1.80	82.4 0.5	3 45.7 14.3	76.3 1.4
17.2	4.18 0.91	75.9 2.7	32.87 1.53	90.4 2.0	22.77 .91	48.8 1.4	57.48 1.76	81.9 0.9	3 31.4 15.5	77.7 0.9
27.2	3.27 .61	73.2 2.9	31.34 1.25	88.4 2.5	21.86 .82	47.4 1.8	55.72 1.69	81.0 1.4	3 15.9 16.2	78.6 0.2
Oct. 7.2	2.66 .28	70.3 3.0	30.09 0.92	85.9 2.7	21.04 .68	45.6 2.2	54.03 1.57	79.6 1.9	2 59.7 16.3	78.8 0.3
17.1	2.38 .08	67.3 3.2	29.17 .55	83.2 3.0	20.36 .51	43.4 2.6	52.46 1.42	77.7 2.3	2 43.4 15.7	78.5 1.0
27.1	2.46 .45	64.1 3.0	28.62 .13	80.2 3.2	19.85 .31	40.8 2.8	51.04 1.21	75.4 2.8	2 27.7 14.5	77.5 1.6
Nov. 6.1	2.91 0.80	61.1 2.9	28.49 .30	77.0 3.1	19.54 .09	38.0 3.0	49.83 0.98	72.6 3.0	2 13.2 12.7	75.9 2.1
16.0	3.71 1.15	58.2 2.5	28.79 0.73	73.9 3.0	19.45 .14	35.0 3.0	48.85 .72	69.6 3.3	2 0.5 10.4	73.8 2.6
26.0	4.86 1.44	55.7 2.2	29.52 1.14	70.9 2.8	19.59 .37	32.0 2.9	48.13 .42	66.3 3.5	1 50.1 07.6	71.2 3.0
Dec. 6.0	6.30 1.70	53.5 1.7	30.66 1.51	68.1 2.5	19.96 .58	29.1 2.7	47.71 .11	62.8 3.5	1 42.5 4.5	68.2 3.2
16.0	8.00 1.90	51.8 1.1	32.17 1.84	65.6 2.0	20.54 .79	26.4 2.5	47.60 .20	59.3 3.5	1 38.0 1.4	65.0 3.4
25.9	9.90 2.05	50.7 0.5	34.01 2.11	63.6 1.6	21.33 .96	23.9 2.1	47.80 .51	55.8 3.4	1 36.6 2.0	61.6 3.5
35.9	11.95	50.2	36.12	62.0	22.29	21.8	48.31	52.4	1 38.6	58.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	12-Year Cat. 1879.		λ^1 Octantis.		ν Octantis.		β Octantis.		γ^1 Octantis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 20 51	° ' " +80 10	h m 21 35	° ' " -83 9	h m 22 12	° ' " -86 27	h m 22 35	° ' " -81 53	h m 23 46	° ' " -82 33
	s	"	s	"	s	"	s	"	s	"
Jan. 1.2	59.33	71.0	38.44	93.4	33.63	84.2	52.06	72.1	14.37	81.8
11.1	58.66	68.2	37.65	90.3	31.48	81.4	51.05	69.6	12.90	80.1
21.1	58.22	65.2	37.17	87.0	29.85	78.2	50.24	66.7	11.57	77.9
31.1	58.01	61.9	36.98	83.4	28.79	74.7	49.65	63.5	10.42	75.2
Feb. 10.0	58.05	58.6	37.11	79.8	28.30	71.0	49.30	59.9	9.48	72.1
20.0	58.33	55.4	37.54	76.1	28.39	67.2	49.19	56.3	8.77	68.7
Mar. 2.0	58.84	52.4	38.25	72.5	29.05	63.4	49.33	52.5	8.31	65.1
12.0	59.58	49.7	39.23	69.0	30.25	59.7	49.70	48.7	8.10	61.3
21.9	60.50	47.4	40.45	65.8	31.95	56.1	50.30	45.1	8.14	57.4
31.9	61.57	45.6	41.88	62.8	34.11	52.8	51.11	41.6	8.44	53.6
Apr. 10.9	62.77	44.4	43.49	60.2	36.68	49.8	52.12	38.3	8.98	49.9
20.9	64.04	43.9	45.25	58.0	39.61	47.1	53.30	35.4	9.76	46.4
30.8	65.34	43.9	47.13	56.2	42.82	44.9	54.63	32.8	10.76	43.2
May 10.8	66.63	44.6	49.07	54.9	46.24	43.1	56.08	30.7	11.95	40.3
20.8	67.87	45.9	51.05	54.1	49.81	41.8	57.63	29.0	13.32	37.8
30.7	69.02	47.7	53.02	53.8	53.44	41.0	59.23	27.8	14.82	35.7
June 9.7	70.06	50.0	54.92	54.0	57.05	40.8	60.84	27.2	16.43	34.1
19.7	70.94	52.7	56.72	54.8	60.54	41.2	62.44	27.1	18.10	33.1
29.7	71.64	55.8	58.37	56.0	63.83	42.0	63.97	27.6	19.79	32.6
July 9.6	72.16	59.1	59.82	57.7	66.82	43.4	65.40	28.5	21.45	32.7
19.6	72.47	62.7	61.03	59.8	69.43	45.2	66.68	30.0	23.03	33.4
29.6	72.57	66.3	61.97	62.3	71.58	47.5	67.77	31.9	24.49	34.6
Aug. 8.6	72.46	69.9	62.60	65.0	73.20	50.0	68.64	34.3	25.78	36.3
18.5	72.15	73.5	62.90	67.8	74.24	52.9	69.27	36.9	26.86	38.5
28.5	71.63	77.0	62.87	70.8	74.65	55.8	69.62	39.7	27.69	41.1
Sept. 7.5	70.93	80.2	62.50	73.7	74.41	58.9	69.70	42.7	28.25	43.9
17.4	70.07	83.2	61.80	76.4	73.53	61.9	69.48	45.7	28.50	46.9
27.4	69.05	85.9	60.81	79.0	72.02	64.7	68.98	48.6	28.44	50.0
Oct 7.4	67.92	88.1	59.54	81.1	69.94	67.2	68.22	51.3	28.07	53.1
17.4	66.68	89.9	58.06	82.8	67.36	69.3	67.23	53.7	27.40	56.0
27.3	65.38	91.2	56.42	84.0	64.37	70.9	66.05	55.6	26.45	58.7
Nov. 6.3	64.04	91.9	54.69	84.6	61.09	72.0	64.71	57.1	25.27	60.9
16.3	62.70	92.1	52.94	84.6	57.65	72.4	63.28	57.9	23.89	62.7
26.3	61.40	91.6	51.23	84.0	54.16	72.3	61.80	58.2	22.37	63.9
Dec. 6.2	60.18	90.6	49.62	82.8	50.77	71.5	60.34	57.8	20.76	64.5
16.2	59.06	89.0	48.19	81.0	47.59	70.0	58.94	56.8	19.12	64.5
26.2	58.09	86.9	46.97	78.6	44.73	68.0	57.66	55.2	17.50	63.9
36.1	57.29	84.4	46.01	75.8	42.30	65.5	56.54	53.0	15.96	62.6

POSITIONS OF OBSERVATORIES.

(North Latitudes and West Longitudes are Considered Positive.)

Place	Latitude.	Reduction to Geocentric Latitude.	Log p .	Longitude.	
				From Washington.	From Greenwich.
				h m s	h m s
Abastuman	+ 41 42 24	- 11 35.5	9.999351	- 7 59 41	- 2 51 25
Åbo	+ 60 26 56.8	- 10 02.1	9.998887	6 37 22.20	- 1 29 06.42
Adelaide	- 34 55 38.5	+ 10 56.8	9.999520	+ 9 37 23.92	- 9 14 20.30
Albany (<i>New Obs.</i>)	+ 42 39 12.7	- 11 38.0	9.999326	- 0 13 09.0	+ 4 55 06.8
Albany (<i>Old Obs.</i>)	+ 42 39 49.5	- 11 38.0	9.999326	- 0 13 15.79	+ 4 54 59.99
Alfred (<i>N. Y.</i>)	+ 42 15 19.8	- 11 37.0	9.999337	+ 0 02 51.37	+ 5 11 07.15
Algiers (<i>Old Obs.</i>)	+ 36 44 00	- 11 10.8	9.999476	- 5 20 32.6	- 0 12 16.8
Algiers (<i>New Obs.</i>)	+ 36 47 50	- 11 11.3	9.999474	- 5 20 24.33	- 0 12 08.55
Allegheny	+ 40 27 41.6	- 11 31.3	9.999383	+ 0 11 47.15	+ 5 20 02.93
Altona	+ 53 32 45.3	- 11 10.2	9.999049	- 5 48 02.02	- 0 39 46.24
Amherst	+ 42 22 17.1	- 11 37.3	9.999334	- 0 18 11.11	+ 4 50 04.67
Annapolis	+ 38 58 53.5	- 11 24.5	9.999420	- 0 02 19.29	+ 5 05 56.49
Ann Arbor	+ 42 16 48.0	- 11 37.0	9.999336	+ 0 26 39.41	+ 5 34 55.19
Arequipa (<i>Harvard</i>)	- 16 24	+ 06 18.4	9.999884	- 0 22 46	+ 4 45 30
Armagh	+ 54 21 12.7	- 11 04.2	9.999029	- 4 41 40.4	+ 0 26 35.4
Athens	+ 37 58 20.7	- 11 18.9	9.999445	- 6 43 08.70	- 1 34 52.92
Bamberg	+ 49 53 06.0	- 11 30.7	9.999141	- 5 51 49.43	- 0 43 33.65
Beloit	+ 42 30 08.4	- 11 37.6	9.999331	+ 0 47 51.5	+ 5 56 07.3
Bergen	+ 60 23 54	- 10 02.7	9.998888	- 5 29 28.53	- 0 21 12.75
Berkeley	+ 37 52 23.6	- 11 18.3	9.999448	+ 3 00 46.94	+ 8 09 02.72
Berlin	+ 52 30 16.7	- 11 17.1	9.999075	- 6 01 50.63	- 0 53 34.85
Berlin (<i>Urania</i>)	+ 52 31 30.7	- 11 17.0	9.999075	- 6 01 43.23	- 0 53 27.45
Berne	+ 46 57 08.7	- 11 39.0	9.999216	- 5 38 01.51	- 0 29 45.73
Besançon	+ 47 14 59.0	- 11 38.5	9.999208	- 5 32 12.95	- 0 23 57.17
Bethlehem	+ 40 36 23.1	- 11 31.9	9.999379	- 0 06 43.93	+ 5 01 31.85
Birr Castle	+ 53 05 47.0	- 11 13.3	9.999060	- 4 36 34.9	+ 0 31 40.9
Bogota	+ 4 36 15.4	- 01 51.5	9.999991	- 0 11 21.58	+ 4 56 54.20
Bologna	+ 44 29 54	- 11 40.3	9.999279	- 5 53 40.7	- 0 45 24.9
Bombay	+ 18 53 45	- 07 08.1	9.999847	- 9 59 31.52	- 4 51 15.74
Bonn	+ 50 43 45.0	- 11 26.9	9.999120	- 5 36 39.00	- 0 28 23.22
Bordeaux	+ 44 50 07.2	- 11 40.4	9.999271	- 5 06 10.24	+ 0 02 05.54
Boston (<i>University</i>)	+ 42 21 32.5	- 11 37.2	9.999334	- 0 24 00.8	+ 4 44 15.0
Bothkamp	+ 54 12 09.6	- 11 05.3	9.999033	- 5 48 47.0	- 0 40 31.2
Breslau	+ 51 06 55.8	- 11 25.0	9.999110	- 6 16 24.57	- 1 08 08.79
Brisbane	- 27 28 00.0	+ 09 32.2	9.999689	+ 8 39 37.82	- 10 12 06.40
Brussels (<i>Uccle</i>)	+ 50 47 53	- 11 26.6	9.999118	- 5 25 42.7	- 0 17 26.9
Brussels (<i>Old Obs.</i>)	+ 50 51 10.7	- 11 26.3	9.999117	- 5 25 44.51	- 0 17 28.73
Budapest	+ 47 29 34.7	- 11 38.0	9.999202	- 6 24 31.1	- 1 16 15.3
Cairo	+ 30 04 38.2	- 10 06.5	9.999632	- 7 13 24.69	- 2 05 08.91
Cambridge (<i>England</i>)	+ 52 12 51.6	- 11 18.9	9.999082	- 5 08 38.53	- 0 00 22.75
Cambridge (<i>Mass.</i>)	+ 42 22 47.6	- 11 37.3	9.999334	- 0 23 44.73	+ 4 44 31.05
Cape of Good Hope	- 33 56 03.6	+ 10 48.0	9.999543	- 6 22 10.54	- 1 13 54.76
Catania	+ 37 30 13.3	- 11 16.0	9.999457	- 6 08 36	- 1 00 20
Chapultepec	+ 19 25 17.5	- 07 18.2	9.999838	+ 1 28 22.52	+ 6 36 38.30
Charkow	+ 50 00 9.6	- 11 30.2	9.999138	- 7 33 11.55	- 2 24 55.77

POSITIONS OF OBSERVATORIES.

(North Latitudes and West Longitudes are Considered Positive.)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ .	Longitude.	
				From Washington.	From Greenwich.
				h m s	h m s
Charlottesville	+ 38 02 01.2	- 11 19.3	9.999444	+ 0 05 49.44	+ 5 14 05.22
Chicago (<i>Old Obs.</i>)	+ 41 50 01.0	- 11 35.9	9.999348	+ 0 42 11.06	+ 5 50 26.84
Christiania	+ 59 54 44.0	- 10 08.7	9.998899	- 5 51 09.30	- 0 42 53.52
Cincinnati (<i>New Obs.</i>)	+ 39 08 19.5	- 11 25.4	9.999416	+ 0 29 25.62	+ 5 37 41.40
Cincinnati (<i>Old Obs.</i>)	+ 39 06 26.5	- 11 25.2	9.999417	+ 0 29 43.22	+ 5 37 59.00
Clinton	+ 43 03 17.0	- 11 38.7	9.999316	- 0 06 38.33	+ 5 01 37.45
Coimbra	+ 40 12 24.5	- 11 30.3	9.999389	- 4 34 32.7	+ 0 33 43.1
Columbia (<i>Missouri</i>)	+ 38 56 51.7	- 11 24.4	9.999421	+ 1 01 02.55	+ 6 09 18.33
Copenhagen	+ 55 41 12.9	- 10 53.1	9.998997	- 5 58 34.48	- 0 50 18.70
Cordoba	- 31 25 15.2	+ 10 22.2	9.999602	- 0 51 27.56	+ 4 16 48.22
Cracow	+ 50 03 52.0	- 11 29.9	9.999137	- 6 28 06.06	- 1 19 50.28
Crowborough	+ 51 03 14	- 11 25.4	9.999112	- 5 08 54	- 0 00 38
Dantzic	+ 54 21 18.0	- 11 04.1	9.999029	- 6 22 55.4	- 1 14 39.6
Denver	+ 39 40 36.4	- 11 27.9	9.999402	+ 1 51 31.85	+ 6 59 47.63
Dorpat	+ 58 22 47.1	- 10 26.4	9.998934	- 6 55 09.07	- 1 46 53.29
Dresden	+ 51 02 16.8	- 11 25.4	9.999112	- 6 03 10.63	- 0 54 54.85
Dublin	+ 53 23 13.1	- 11 11.3	9.999053	- 4 42 54.7	+ 0 25 21.1
Dun Echt	+ 57 09 36	- 10 39.2	9.998962	- 4 58 35.8	+ 0 09 40.0
Durham	+ 54 46 06.2	- 11 00.9	9.999019	- 5 01 56.03	+ 0 06 19.75
Düsseldorf	+ 51 12 25.0	- 11 24.6	9.999108	- 5 35 20.8	- 0 27 05.0
Edinburgh (<i>Calton Hill</i>)	+ 55 57 23.2	- 10 50.7	9.998991	- 4 55 32.7	+ 0 12 43.1
Edinburgh (<i>Royal Obs.</i>)	+ 55 55 28.0	- 10 50.9	9.998991	- 4 55 31.6	+ 0 12 44.2
Evanston (<i>Dearborn</i>)	+ 42 03 33.4	- 11 36.5	9.999342	+ 0 42 26.5	+ 5 50 42.3
Florence (<i>Reale Museo</i>)	+ 43 46 04.1	- 11 39.7	9.999298	- 5 53 17.3	- 0 45 01.5
Florence (<i>Arcetri</i>)	+ 43 45 14.6	- 11 39.7	9.999298	- 5 53 17.12	- 0 45 01.34
Geneva	+ 46 11 58.8	- 11 39.9	9.999236	- 5 32 52.49	- 0 24 36.71
Genoa	+ 44 25 09.3	- 11 40.2	9.999281	- 5 43 57.11	- 0 35 41.33
Georgetown	+ 38 54 26.7	- 11 24.2	9.999422	+ 0 00 02.48	+ 5 08 18.26
Glasgow (<i>Missouri</i>)	+ 39 13 45.6	- 11 25.8	9.999414	+ 1 03 02.30	+ 6 11 18.08
Glasgow (<i>Scotland</i>)	+ 55 52 42.8	- 10 51.5	9.998993	- 4 51 05.23	+ 0 17 10.55
Gohlis	+ 51 21 35.0	- 11 23.7	9.999104	- 5 57 45.43	- 0 49 29.65
Gotha (<i>Old Obs.</i>)	+ 50 56 05.2	- 11 26.0	9.999114	- 5 51 10.88	- 0 42 55.10
Gotha	+ 50 56 37.9	- 11 25.9	9.999114	- 5 51 06.27	- 0 42 50.49
Göttingen	+ 51 31 47.9	- 11 22.8	9.999100	- 5 48 02.07	- 0 39 46.29
Graz	+ 47 04 37.2	- 11 38.8	9.999213	- 6 10 04	- 1 01 48
Greenwich	+ 51 28 38.1	- 11 23.1	9.999101	- 5 08 15.78	0 00 00.00
Grignon	+ 47 33 42	- 11 37.8	9.999201	- 5 25 54	- 0 17 38
Hamburg	+ 53 33 07.0	- 11 10.1	9.999049	- 5 48 09.6	- 0 39 53.8
Hanover	+ 43 42 15.3	- 11 39.6	9.999300	- 0 19 07.87	+ 4 49 07.91
Harrow	+ 51 34 47.1	- 11 22.6	9.999098	- 5 06 55.92	+ 0 01 19.86
Hastings-on-Hudson	+ 40 59 25	- 11 33.2	9.999369	- 0 12 46.33	+ 4 55 29.45
Haverford	+ 40 00 40.1	- 11 29.4	9.999394	- 0 07 03.08	+ 5 01 12.70
Heidelberg	+ 49 24 35	- 11 32.5	9.999153	- 5 43 04.3	- 0 34 48.5
Helsingfors	+ 60 09 42.6	- 10 05.6	9.998893	- 6 48 04.93	- 1 39 49.15
Hereny	+ 47 15 47.4	- 11 38.4	9.999208	- 6 14 40.5	- 1 06 24.7

POSITIONS OF OBSERVATORIES.

(North Latitudes and West Longitudes are Considered Positive.)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ .	Longitude.	
				From Washington.	From Greenwich.
				h m s	h m s
Hongkong	+ 22 18 13.4	- 08 10.7	9.999789	+ 11 15 2.36	- 7 36 41.86
Hudson	+ 41 14 42.6	- 11 34.1	9.999363	+ 0 17 25.5	+ 5 25 41.3
Jamaica	+ 18 24 51	- 06 58.7	9.999854	+ 0 03 13.70	+ 5 11 29.48
Jena (<i>University</i>)	+ 50 55 34.9	- 11 26.0	9.999115	- 5 54 36.05	- 0 46 20.27
Kalocsa	+ 46 31 41.7	- 11 39.6	9.999227	- 6 24 10.12	- 1 15 54.34
Karlsruhe	+ 49 00 29.6	- 11 33.9	9.999163	- 5 41 52.2	- 0 33 36.4
Kasan	+ 55 47 24.4	- 10 52.2	9.998995	- 8 24 44.82	- 3 16 29.04
Kew	+ 51 28 06	- 11 23.2	9.999101	- 5 07 00.7	+ 0 01 15.1
Kiel	+ 54 20 28.5	- 11 04.2	9.999030	- 5 48 51.42	- 0 40 35.64
Kiew	+ 50 27 10.5	- 11 28.2	9.999127	- 7 10 16.42	- 2 02 00.64
Kis Kartal	+ 47 41 54.8	- 11 37.5	9.999197	- 6 26 27.5	- 1 18 11.7
Königsberg	+ 54 42 50.4	- 11 01.3	9.999021	- 6 30 14.82	- 1 21 59.04
Kremsmünster	+ 48 03 23.1	- 11 36.7	9.999188	- 6 04 47.37	- 0 56 31.59
La Plata	- 34 54 30.3	+ 10 56.7	9.999520	- 1 16 38.8	+ 3 51 37.0
Leiden	+ 52 09 20.0	- 11 19.3	9.999084	- 5 26 11.95	- 0 17 56.17
Leipzig	+ 51 20 05.9	- 11 23.9	9.999104	- 5 57 49.76	- 0 49 33.98
Liege (<i>Cointe, Ougrée</i>)	+ 50 37 07	- 11 27.5	9.999123	- 5 30 31.0	- 0 22 15.2
Lisbon (<i>Marine Obs.</i>)	+ 38 42 17.6	- 11 23.3	9.999427	- 4 31 42.20	+ 0 36 33.58
Lisbon (<i>Royal Obs.</i>)	+ 38 42 31.3	- 11 23.1	9.999427	- 4 31 31.10	+ 0 36 44.68
Liverpool	+ 53 24 04.8	- 11 11.2	9.999053	- 4 55 58.45	+ 0 12 17.33
Lübec	+ 53 51 31.1	- 11 07.9	9.999042	- 5 51 01.5	- 0 42 45.7
Lund	+ 55 41 51.6	- 10 53.0	9.998997	- 6 01 00.79	- 0 52 45.01
Lussinpiccolo (<i>Manora</i>)	+ 44 32 11.0	- 11 40.3	9.999278	- 6 06 08.19	- 0 57 52.41
Lyons	+ 45 41 41.0	- 11 40.3	9.999248	- 5 27 24.33	- 0 19 08.55
Madison	+ 43 04 36.8	- 11 38.7	9.999316	+ 0 49 22.15	+ 5 57 37.93
Madras	+ 13 04 08.0	- 05 07.6	9.999925	- 10 29 14.90	- 5 20 59.12
Madrid	+ 40 24 29.7	- 11 31.1	9.999384	- 4 53 30.66	+ 0 14 45.12
Manila	+ 14 35 25	- 05 40.5	9.999907	+ 10 47 54	- 8 03 50
Mannheim	+ 49 29 11.0	- 11 32.2	9.999151	- 5 42 06.23	- 0 33 50.45
Marburg	+ 50 48 46.9	- 11 26.5	9.999118	- 5 43 20.7	- 0 35 04.9
Markree	+ 54 10 31.8	- 11 05.5	9.999034	- 4 34 27.4	+ 0 33 48.4
Marseilles	+ 43 18 17.5	- 11 39.1	9.999310	- 5 29 50.37	- 0 21 34.59
Mauritius	- 20 05 39	+ 07 30.8	9.999828	- 8 58 28.4	- 3 50 12.6
Melbourne	- 37 49 53.4	+ 11 18.1	9.999449	+ 9 11 50.2	- 9 39 54.0
Meudon	+ 48 48 18	- 11 34.6	9.999169	- 5 17 11.4	- 0 08 55.6
Mexico	+ 19 26 01.3	- 07 18.4	9.999838	+ 1 28 10.95	+ 6 36 26.73
Middletown (<i>Conn.</i>)	+ 41 33 16.0	- 11 35.1	9.999355	- 0 17 38.60	+ 4 50 37.18
Milan	+ 45 27 59.3	- 11 40.4	9.999254	- 5 45 01.70	- 0 36 45.92
Modena	+ 44 38 52.8	- 11 40.4	9.999275	- 5 51 58.7	- 0 43 42.9
Moncalieri	+ 44 59 51	- 11 40.4	9.999266	- 5 39 05	- 0 30 49
Montreal	+ 45 30 17.0	- 11 40.4	9.999253	- 0 13 57.15	+ 4 54 18.63
Montsouris	+ 48 49 18.0	- 11 34.5	9.999168	- 5 17 36.46	- 0 09 20.68
Moscow	+ 55 45 19.8	- 10 52.5	9.998995	- 7 38 32.87	- 2 30 17.09
Mount Hamilton (<i>Lick</i>)	+ 37 20 25.6	- 11 14.9	9.999461	+ 2 58 19.11	+ 8 06 34.89
Munich	+ 48 08 45.5	- 11 36.5	9.999186	- 5 54 41.85	- 0 46 26.07

POSITIONS OF OBSERVATORIES.

(North Latitudes and West Longitudes are Considered Positive.)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ .	Longitude.	
				From Washington.	From Greenwich.
	° ' "	' "	"	h m s	h m s
Naples	+40 51 46.3	- 11 32.8	9.999372	- 6 05 17.51	- 0 57 01.73
Nashville	+36 08 54.4	- 11 06.6	9.999490	+ 0 38 56.4	+ 5 47 12.2
Natal	-29 50 46.6	+ 10 03.7	9.999637	- 7 12 16.96	- 2 04 01.18
Neuchatel	+47 00 01.2	- 11 38.9	9.999215	- 5 36 05.71	- 0 27 49.93
New Haven (<i>Old Obs.</i>)	+41 18 36.5	- 11 34.3	9.999361	- 0 16 33.64	+ 4 51 42.14
New Haven (<i>Yale Univ.</i>)	+41 19 22.3	- 11 34.4	9.999361	- 0 16 35.20	+ 4 51 40.58
New York (<i>Columb. Coll.</i>)	+40 45 23.1	- 11 32.4	9.999375	- 0 12 22.14	+ 4 55 53.64
New York (<i>RUTHERFURD</i>)	+40 43 48.5	- 11 32.3	9.999376	- 0 12 19.10	+ 4 55 56.68
Nice	+43 43 16.9	- 11 39.6	9.999299	- 5 37 27.96	- 0 29 12.18
Nicolaëff	+46 58 21.8	- 11 38.9	9.999216	- 7 16 09.58	- 2 07 53.80
Northfield	+44 27 41.6	- 11 40.3	9.999280	+ 1 04 20.03	+ 6 12 35.81
Oakland (<i>Cal.</i>)	+37 48 05	- 11 17.9	9.999449	+ 3 00 50.77	+ 8 09 06.55
Odessa	+46 28 36.7	- 11 39.6	9.999228	- 7 11 17.88	- 2 03 02.10
Ogden	+41 13 08.6	- 11 34.0	9.999363	+ 2 19 43.85	+ 7 27 59.63
O-Gyalla	+47 52 27.3	- 11 37.1	9.999192	- 6 21 01.32	- 1 12 45.54
Olmütz	+49 35 43	- 11 31.8	9.999149	- 6 17 24	- 1 09 08
Oxford (<i>Mississippi</i>)	+34 22 12.6	- 10 52.0	9.999533	+ 0 49 51.3	+ 5 58 07.1
Oxford (<i>Radcliffe</i>)	+51 45 35.4	- 11 21.6	9.999094	- 5 03 13.2	+ 0 05 02.6
Oxford (<i>University</i>)	+51 45 34.2	- 11 21.6	9.999094	- 5 03 15.4	+ 0 05 00.4
Padua	+45 24 05	- 11 40.4	9.999256	- 5 55 44.97	- 0 47 29.19
Palermo	+38 06 44.0	- 11 19.7	9.999442	- 6 01 41.68	- 0 53 25.90
Paramatta	-33 48 49.8	+ 10 46.9	9.999546	+ 8 47 44.0	-10 04 00.2
Paris	+48 50 11.2	- 11 34.5	9.999168	- 5 17 36.75	- 0 09 20.97
Philadelphia	+39 57 07.5	- 11 29.2	9.999396	- 0 07 37.27	+ 5 00 38.51
Plonsk	+52 37 40.0	- 11 16.4	9.999072	- 6 29 47.8	- 1 21 32.0
Pola	+44 51 48.7	- 11 40.4	9.999270	- 6 03 38.67	- 0 55 22.89
Portsmouth	+50 48 03	- 11 26.6	9.999118	- 5 03 51.0	+ 0 04 24.8
Potsdam	+52 22 56.0	- 11 17.9	9.999078	- 6 00 31.7	- 0 52 15.9
Poughkeepsie	+41 41 18	- 11 35.5	9.999351	- 0 12 42.13	+ 4 55 33.65
Prague (<i>University</i>)	+50 05 15.8	- 11 29.8	9.999136	- 6 05 56.1	- 0 57 40.3
Princeton	+40 20 57.8	- 11 30.8	9.999385	- 0 09 38.17	+ 4 58 37.61
Princeton (<i>Halsted</i>)	+40 20 55.8	- 11 30.9	9.999386	- 0 09 36.34	+ 4 58 39.44
Providence (<i>SEAGRAVE</i>)	+41 49 46.4	- 11 35.9	9.999348	- 0 22 38.14	+ 4 45 37.64
Providence (<i>Ladd</i>)	+41 50 21	- 11 35.9	9.999348	- 0 22 39.83	+ 4 45 35.95
Pulkowa	+59 46 18.7	- 10 10.4	9.998902	- 7 09 34.42	- 2 01 18.64
Quebec	+46 47 59.2	- 11 39.2	9.999220	- 0 23 23.14	+ 4 44 52.64
Quito	- 0 14 00	+ 00 05.7	0.000000	+ 0 05 50.88	+ 5 14 06.66
Riga	+56 57 09.3	- 10 41.3	9.998967	- 6 44 43.95	- 1 36 28.17
Rio de Janeiro	-22 54 23.6	+ 08 21.1	9.999779	- 2 15 34.4	+ 2 52 41.4
Rochester	+43 09 16.8	- 11 38.8	9.999314	+ 0 02 06.00	+ 5 10 21.78
Rome (<i>Coll. Rom.</i>)	+41 53 53.6	- 11 36.1	9.999346	- 5 58 11.33	- 0 49 55.55
Rome (<i>Capitol</i>)	+41 53 33.5	- 11 36.0	9.999346	- 5 58 12.15	- 0 49 56.37
Rome (<i>Vatican</i>)	+41 54 04.8	- 11 36.1	9.999346	- 5 58 05.25	- 0 49 49.47
Rousdon	+50 42 38	- 11 27.0	9.999120	- 4 56 16.84	+ 0 11 58.94
Rugby	+52 22 07	- 11 18.0	9.999079	- 5 03 13.8	+ 0 05 02.0

POSITIONS OF OBSERVATORIES.

(North Latitudes and West Longitudes are Considered Positive.)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ .	Longitude.	
				From Washington.	From Greenwich.
				h m s	h m s
San Fernando	+36 27 42.0	-11 08.9	9.999483	- 4 43 26.6	+ 0 24 49.2
San Francisco	+37 47 27.9	-11 17.8	9.999450	+ 3 01 27.08	+ 8 09 42.86
Santiago de Chile	-33 26 42.0	+10 43.4	9.999555	- 0 25 29.56	+ 4 42 46.22
South Hadley	+42 15 18.2	-11 37.0	9.999337	- 0 17 55.49	+ 4 50 20.29
Speier	+49 18 55.2	-11 32.9	9.999156	- 5 42 01.34	- 0 33 45.56
St. Louis	+38 38 03.0	-11 22.7	9.999429	+ 0 52 33.48	+ 6 00 49.26
St. Petersburg (<i>Academy</i>)	+59 56 29.7	-10 08.4	9.998898	- 7 09 29.24	- 2 01 13.46
St. Petersburg (<i>Univ.</i>)	+59 56 32.0	-10 08.4	9.998898	- 7 09 27.2	- 2 01 11.4
Stockholm	+59 20 33.0	-10 15.5	9.998912	- 6 20 29.77	- 1 12 13.99
Stonyhurst	+53 50 40	-11 08.0	9.999042	- 4 58 23.10	+ 0 09 52.68
Strassburg (<i>New Obs.</i>)	+48 35 00.3	-11 35.3	9.999174	- 5 39 20.47	- 0 31 04.69
Strassburg (<i>Old Obs.</i>)	+48 34 53.8	-11 35.3	9.999174	- 5 39 18.27	- 0 31 02.49
Sydney	-33 51 41.1	+10 47.3	9.999545	+ 8 46 54.68	-10 04 49.54
Syracuse	+43 02 13.1	-11 38.6	9.999317	- 0 03 42.42	+ 5 04 33.36
Tacubaya	+19 24 17.5	-07 17.8	9.999839	+ 1 28 30.75	+ 6 36 46.53
Taschkent	+41 19 31.3	-11 34.4	9.999361	- 9 45 26.58	- 4 37 10.80
Tokio	+35 39 17.5	-11 02.8	9.999502	+ 9 32 46.20	- 9 18 58.02
Toronto	+43 39 35.9	-11 39.6	9.999301	+ 0 09 18.87	+ 5 17 34.65
Toulouse	+43 36 45	-11 39.5	9.999302	- 5 14 05.66	- 0 05 49.88
Trieste	+45 38 45.4	-11 40.3	9.999250	- 6 03 18.73	- 0 55 02.95
Troy (<i>N. Y.</i>)	+42 43 52.9	-11 38.1	9.999325	- 0 13 33.49	+ 4 54 42.29
Tulse Hill	+51 26 47.0	-11 23.3	9.999102	- 5 07 48.1	+ 0 00 27.7
Turin	+45 04 08.0	-11 40.4	9.999265	- 5 39 02.96	- 0 30 47.18
Tuscaloosa (<i>Ala. Univ.</i>)	+33 12 36.8	-10 41.1	9.999561	+ 0 41 55.96	+ 5 50 11.74
Twickenham	+51 27 04.2	-11 23.3	9.999102	- 5 07 02.7	+ 0 01 13.1
Upsala (<i>New Obs.</i>)	+59 51 29.4	-10 09.3	9.998900	- 6 18 45.93	- 1 10 30.15
Utrecht	+52 05 09.6	-11 19.7	9.999086	- 5 28 46.8	- 0 20 31.0
Venice	+45 26 10.5	-11 40.4	9.999255	- 5 57 37.90	- 0 49 22.12
Vienna (<i>Josephstadt</i>)	+48 12 53.8	-11 36.2	9.999183	- 6 13 41.1	- 1 05 25.3
Vienna (<i>New Obs.</i>)	+48 13 55.4	-11 36.2	9.999183	- 6 13 37.17	- 1 05 21.39
Vienna (<i>Old Obs.</i>)	+48 12 35.5	-11 36.3	9.999184	- 6 13 47.42	- 1 05 31.64
Vienna (<i>Ottakring</i>)	+48 12 46.7	-11 36.2	9.999183	- 6 13 26.89	- 1 05 11.11
Warsaw	+52 13 04.7	-11 18.9	9.999082	- 6 32 23.06	- 1 24 07.28
Washington	+38 55 14.0	-11 24.2	9.999422	0 00 00.00	+ 5 08 15.78
Washington (<i>Old Obs.</i>)	+38 53 38.8	-11 24.1	9.999422	- 0 00 03.63	+ 5 08 12.15
Washington (<i>Smithsonian</i>)	+38 53 17.3	-11 24.1	9.999422	- 0 00 09.6	+ 5 08 06.2
Washington (<i>Cath. Univ.</i>)	+38 56 14.8	-11 24.2	9.999422	- 0 00 15.78	+ 5 08 00.00
Wellington	-41 18 00.6	+11 34.3	9.999361	+ 7 12 37.70	-11 39 06.52
West Point (<i>Old Obs.</i>)	+41 23 31	-11 34.6	9.999359	- 0 12 26.34	+ 4 55 49.44
West Point (<i>New Obs.</i>)	+41 23 22.1	-11 34.6	9.999359	- 0 12 25.23	+ 4 55 50.55
Wilhelmshaven	+53 31 52.2	-11 10.3	9.999050	- 5 40 50.89	- 0 32 35.11
Williamstown (<i>Mass.</i>)	+42 42 30	-11 38.0	9.999325	- 0 15 26	+ 4 52 50
Williamstown (<i>Victoria</i>)	-37 52 07.2	+11 18.3	9.999448	+ 9 12 6.1	- 9 39 38.1
Wilna	+54 40 59.1	-11 01.6	9.999021	- 6 49 24.60	- 1 41 08.82
Windsor	-33 36 30.8	+10 44.9	9.999551	+ 8 48 23.7	-10 03 20.5
Zürich	+47 22 40.0	-11 38.2	9.999205	- 5 42 28.08	- 0 34 12.30

ON THE ARRANGEMENT AND USE OF THE AMERICAN EPHEMERIS AND NAUTICAL ALMANAC.

PART I—THE EPHEMERIS FOR THE MERIDIAN OF GREENWICH.

The greater portion of this Ephemeris, embracing the positions of the Sun and Moon, the distances of the Moon from the center of the Sun, from the centers of the four most conspicuous planets, and from certain fixed stars, together with the ephemerides of the planets Mercury, Venus, Mars, Jupiter, and Saturn, is designed for the special use of navigators. The remainder of the work contains the ephemerides of Uranus and Neptune, the heliocentric co-ordinates of the seven major planets, the rectangular equatorial co-ordinates of the Sun, the Moon's longitude and latitude, data for the libration of the Moon, the obliquity of the ecliptic, the nutation, the positions of certain standard stars, the ephemeris for the meridian of Washington, etc.

TIME.

Astronomers make use of three different kinds of time, namely: First, true or apparent solar time; second, mean solar time; third, sidereal time.

True or Apparent Solar Time.—This species of time is called indifferently either true solar time, or apparent solar time, and is measured by the motion of the true Sun; the length of the day being the interval between two successive transits of the Sun over the same meridian, and the time of day being always the hour angle of the Sun from the meridian. This is the most obvious and natural measure of time, but owing to the obliquity of the ecliptic and the varying motion of the Earth in its orbit, the intervals between successive returns of the Sun to the same meridian are not exactly equal, and consequently ordinary clocks and chronometers cannot be regulated to true solar time.

Mean Solar Time.—To avoid the irregularity which would arise from using the true solar day, astronomers have recourse to a mean solar day, whose length is equal to the average of all the true solar days in a year. Just as the true solar day depends upon the motion of the true Sun, so the mean solar day is made to depend upon the motion of an imaginary mean Sun which moves along the equator at a perfectly uniform rate, and whose hour-angle from any given meridian is always the mean solar time there. Ordinary clocks and watches, and the chronometers used by navigators, are regulated to this species of time.

Equation of Time.—The imaginary mean Sun is supposed to keep as near the true Sun as is consistent with perfect uniformity of motion, but it is sometimes before and sometimes behind the latter, the greatest difference amounting to about sixteen minutes of time. The interval between the true Sun and the imaginary mean Sun is the equation of time, given on pages I and II of the Ephemeris for the meridian of Greenwich, and a knowledge of it is necessary for converting true solar time into mean solar time, or vice versa. As the mean Sun is an imaginary body, mean solar time cannot be directly observed, but it can be got either from observations of the true Sun by applying to them the correction for the equation of time, or from observations of the stars by means of the sidereal time of mean noon, given on page II of the Ephemeris for the meridian of Greenwich.

Sidereal Time.—Sidereal time is measured by the daily motion of the stars, or rather, stating the matter more accurately, by the daily motion of that point in the equator from which the true right ascensions of the stars are counted. This point is the vernal equinox, and its hour-angle is called the sidereal time. Astronomical clocks, regulated to sidereal time, are called sidereal clocks.

Sidereal Day.—A sidereal day is the interval between two successive transits of the vernal equinox over the same meridian. It is $3^m 55.909^s$ of mean solar time shorter than the mean solar day; the solar year of $365\frac{1}{4}$ solar days, being divided into $366\frac{1}{4}$ sidereal days, each comprising 24 sidereal hours. The sidereal hours are counted from 0 to 24, commencing with the instant of the passage of the true vernal equinox over the upper meridian, and ending with its return to the same meridian. About March 21 of each year the sidereal clock agrees with the mean time or ordinary clock, and the former gains on the latter $3^m 56.555^s$ per day, so that at the end of a year it will have gained an entire day, and will again agree with the mean time clock.

Civil Day.—According to the customs of society, the civil day commences at midnight, and comprises twenty-four hours, which extend to the next following midnight. The hours are counted from 0 to 12 in two series; the first, marked A. M., running from midnight to noon, and the second, marked P. M., running from noon to midnight.

Astronomical Day.—The astronomical day begins at noon on the civil day of the same date. It also comprises twenty-four hours, but they are reckoned from 0 to 24, and run from the noon of one day to that of the next following. Astronomical time as well as civil time may be either apparent or mean, according as it is reckoned from apparent noon or from mean noon.

The civil day begins twelve hours before the astronomical day; therefore the first half of the civil day corresponds to the last half of the preceding astronomical day, and the last half of the civil day coincides with the first half of the astronomical day of the same date. Thus, January 9, 2 o'clock, A. M., civil time, is January 8, 14^h , astronomical time; and January 9, 2 o'clock, P. M., civil time, is also January 9, 2^h , astronomical time. Hence, we have the following rules:

To convert Civil Time into Astronomical Time.—If the civil time is marked A. M., take one from the day and add twelve to the hours, and the result will be the corresponding astronomical time; if the civil time is marked P. M., take away the designation P. M., and the astronomical time will result.

To convert Astronomical Time into Civil Time.—If the astronomical time is less than twelve hours, simply write P. M. after it. If greater than twelve hours, subtract twelve hours from it, mark the result A. M., and add one to the days. For example, January 3, 23 hours astronomical time, is January 4, 11 o'clock, A. M., civil time.

To find Greenwich Time.—Express the longitude from Greenwich in time, and when west, add it to the local time, or when east, subtract it from the local time. The result will be the corresponding Greenwich time; mean or sidereal, according as the local time employed is mean or sidereal. For use with this Ephemeris, Greenwich mean time is ordinarily required.

THE CALENDAR.

The Calendar is divided into twelve months, and to each month are assigned eighteen pages, the contents of which are as follow:—

Page I contains, for Greenwich apparent noon of each day, *The Sun's Apparent Right Ascension and Declination*, and the *Equation of Time*. Adjoining columns contain the differences of these quantities for one hour. By multiplying any one of these differences by the hours and parts of an hour from Greenwich apparent noon, and adding the amount to, or subtracting it from, the corresponding quantity at noon, according as that quantity is increasing or decreasing, we obtain the value of the quantity in question for any given Greenwich apparent time. The hourly differences are given for the instant of apparent noon at Greenwich, and, when great accuracy is required, they should first be interpolated for half the hours and parts of an hour of the Greenwich apparent time.

This page is chiefly used when the Sun is observed on the meridian, at which instant

the local apparent time is $0^h 00^m 00^s$. The longitude from Greenwich expressed in time, is then the corresponding Greenwich apparent time, before or after noon according as the longitude is east or west. The longitude of any place is therefore the factor employed in reducing the quantities on this page to apparent noon at that place.

The right ascension of the Sun thus reduced is the sidereal time of local apparent noon. The difference between it and the clock time of the meridian passage of the Sun is the error of the clock on sidereal time.

The declination of the Sun reduced to the meridian, or apparent noon, of the place, is required in finding the latitude from a meridian altitude of the Sun.

As an example of the use of page I:—

Let the Sun's declination be required at apparent noon, 1901, May 3, at a place whose longitude is $179^\circ 40'$, or $11^h 58^m 40^s$ east from Greenwich:

Local apparent time	May 3,	<div style="text-align: right;">h m s 00 00 00</div>
Longitude from Greenwich (subtractive)		<div style="text-align: right;">11 58 40</div>
Greenwich apparent time	May 2,	<div style="text-align: right;">12 01 20</div>

Reducing the minutes and seconds to decimals of an hour, we find that this moment is 12.022^h after Greenwich apparent noon on May 2, or 11.978^h before Greenwich apparent noon on May 3.

On page 74 of the Ephemeris we find that the change of declination in one hour is

May 2, at Greenwich apparent noon	<div style="text-align: right;">+ 45.00</div>
May 3, at Greenwich apparent noon	<div style="text-align: right;">+ 44.36</div>
Difference for one day	<div style="text-align: right;">— 0.64</div>

If great exactness is desired, we find the amount of this hourly difference for the time which is half way between Greenwich noon and the time of observation; that is, for 6 hours after Greenwich noon of the 2nd, this being half of 12 hours. Six hours is 0.25 of a day; so the calculation is as follows:—

Difference for one hour, May 2	<div style="text-align: right;">45.00</div>
Change for 0.25 of a day or $0.64'' \times 0.25$	<div style="text-align: right;">— 0.16</div>
Difference at 6 hours after noon	<div style="text-align: right;">44.84</div>
$44.84'' \times 12.022 = 539.1'' = 8' 59.1''$	
Declination at Greenwich noon, May 2	<div style="text-align: right;">N. 15 15 01.5</div>
Change in 12.022 hours (additive)	<div style="text-align: right;">8 59.1</div>
Sun's declination at time of observation	<div style="text-align: right;">N. 15 24 00.6</div>

When the time of observation is only a few hours before Greenwich noon, it may be better to count the longitude backward from this nearest noon. Thus, in the example just given, the time is 11.978^h before Greenwich noon of May 3; half this interval is about 0.25 of a day, and the hourly motion for the middle of the interval is $44.52''$. Then, we find:—

Declination at Greenwich noon, May 3	<div style="text-align: right;">N. 15 32 53.9</div>
Product of $44.52'' \times 11.978 = 533.3''$ (subtractive)	<div style="text-align: right;">8 53.3</div>
Sun's declination at time of observation	<div style="text-align: right;">N. 15 24 00.6</div>

It will always be well to make the calculation by both methods, as the agreement of the results affords a useful check on their accuracy.

At sea it is ordinarily sufficient to compute the declination to the nearest half minute, and the reduction may then be found by Table 12 of BOWDITCH'S *American Practical Navigator*.

The equation of time, as has been before explained, is the number of minutes and seconds to be added to or subtracted from the apparent time, or the time given by an observation of the Sun, to obtain the mean time. The heading of the column directs the manner in

which the equation is to be applied. When there is a change in the course of the month from addition to subtraction or the reverse (as in the months of April and June), the two different directions are separated by a line, while a corresponding line below points out the dates between which the change takes place. *The Equation of Time*, as given on page I, is the mean time of apparent noon, or the hour-angle of the mean Sun at that instant.

The Sun's Semidiameter and the *Sidereal Time of Semidiameter Passing Meridian* are also given on page I. The Sun's semidiameter is used in reducing the altitude of the upper or lower limb of the Sun to the altitude of the center; and in reducing the angular distance between the limb of the Sun and the Moon or other object, to the distance from the center of the Sun. The sidereal time of semidiameter passing the meridian is employed in obtaining the passage of the Sun's center over the wires of a transit-instrument, when the passage of one limb only has been observed. The quantity found in this column is to be added to the time of transit of the first, or western, limb; and to be subtracted from the time of transit of the second, or eastern, limb.

Page II contains, for Greenwich mean noon of each day, *The Sun's Apparent Right Ascension* and *Declination*, the *Equation of Time*, and the *Sidereal Time of Mean Noon*. The hourly changes of these quantities are also given, and may be used in reducing them to any Greenwich mean time. When great precision is required, these changes should be interpolated for half the Greenwich time, as described in explaining the calculation of the declination.

The right ascensions and declinations on pages I and II are affected both by aberration and nutation, and therefore denote the *apparent* positions of the *true* Sun. Page II is more conveniently used when the mean time is known. This is the case in most observations of the Sun out of the meridian, when the times have been noted by a clock or chronometer regulated to mean time. The quantities on this page can be reduced to mean noon of any place by interpolating for the longitude, as in the example of the Sun's declination on the preceding page.

The Sun's declination is required whenever that body is observed for the purpose of finding latitude, local time, or azimuth.

The equation of time is needed in finding the apparent time when determining the latitude from observations of the Sun out of the meridian. As given on page II, it is the apparent time of mean noon, and is equivalent to the hour-angle of the true Sun at the instant of mean noon. The heading of the column directs how the equation must be applied to mean time in order to obtain the apparent time.

The sidereal time of mean noon is the right ascension of the mean Sun at Greenwich mean noon. It may be reduced for the longitude, or to any Greenwich mean time, by using the hourly difference, 9.8565^s ; or by Table III, appended to this volume, for reducing intervals of mean solar to sidereal time; or by Table 9 of BOWDITCH's *Navigator*.

The sidereal time of mean noon, or right ascension of the mean Sun, is useful in converting mean time to sidereal time. We first find the Greenwich mean time, then the right ascension of the mean Sun for that time, as last explained; and this being added to the local mean time will give the sidereal time.

The sidereal time of mean noon, reduced for the longitude of the place, is also used in converting sidereal time to mean time. Subtracting the reduced value from the given sidereal time, gives the interval of sidereal time from noon. Subtracting from this the corresponding reduction of a sidereal interval to a mean time interval, in Table II appended to this volume, or Table 8 of BOWDITCH's *Navigator*, will give the mean time required. Instead of using Table II, this reduction may be found by multiplying 9.8296^s by the hours and parts of an hour of the sidereal interval from noon.

As examples of the use of page II:—

1.—Let the Sun's right ascension and the equation of time be required for 1901, May 22,

$9^h 2^m 30^s$, A. M., mean time, at a place whose longitude is $100^\circ 10'$, or $6^h 40^m 40^s$, west of Greenwich.

Local astronomical mean time	.	.	.	May 21,	$\begin{matrix} h & m & s \\ 21 & 02 & 30 \end{matrix}$
Longitude from Greenwich (additive)	.	.	.	.	$\begin{matrix} 6 & 40 & 40 \\ \hline \end{matrix}$
Greenwich mean time	.	.	.	May 22,	$3 \ 43 \ 10 = 3.7194^h$

Sun's Right Ascension.

Equation of Time.

May 22, Greenwich noon	$\begin{matrix} h & m & s \\ 3 & 54 & 05.54 \end{matrix}$	May 22, Greenwich noon	$\begin{matrix} m & s \\ 3 & 34.65 \text{ (additive)} \end{matrix}$
H. D. $10.028^s \times 3.7194$	$\begin{matrix} + & 0 & 37.30 \\ \hline 3 & 54 & 42.84 \end{matrix}$	H. D. $-0.171^s \times 3 \ 72$	$\begin{matrix} - & 00.64 \\ \hline 3 & 34.01 \end{matrix}$

In this case, the hourly differences interpolated to half the interval, or 1.9^h after noon, have been used.

The equation of time in this example is additive to mean time. Its reduction could also have been found by Table 12 of BOWDITCH'S *Navigator*.

2.—If the sidereal time is required for the same date and time, we have:—

May 22, Sidereal Time (at Greenwich mean noon)	$\begin{matrix} h & m & s \\ 3 & 57 & 40.19 \end{matrix}$
Reduction for $3^h 43^m 10^s$ from Table III, or $9.8565^s \times 3.7194$	$\begin{matrix} + & 36.66 \\ \hline 21 & 02 & 30.00 \end{matrix}$
Add the local astronomical mean time	$\begin{matrix} 21 & 02 & 30.00 \end{matrix}$
The required sidereal time is (rejecting 24^h)	$\begin{matrix} 1 & 00 & 46.85 \end{matrix}$

The reduction $0^m 36.66^s$ could have been found in Table III corresponding to the Greenwich mean time $3^h 43^m 10^s$ or by Table 9 of BOWDITCH'S *Navigator*.

3.—On 1901, May 22, A. M., at a place whose longitude is $100^\circ 10' W.$, suppose the sidereal time to be $1^h 00^m 46.85^s$, and that the corresponding mean time is required.

The astronomical day is May 21; the longitude in time, $+ 6^h 40^m 40^s$, or $+ 6.678^h$.

May 21, Sidereal Time (at Greenwich mean noon)	$\begin{matrix} h & m & s \\ 3 & 53 & 43.64 \end{matrix}$
Reduction for $6^h 40^m 40^s$ from Table III, or $9.8565^s \times 6.678$	$\begin{matrix} + & 01 & 05.82 \\ \hline 3 & 54 & 49.46 \end{matrix}$
The sidereal time of local mean noon	$\begin{matrix} 3 & 54 & 49.46 \end{matrix}$
The given sidereal time ($+ 24^h$, if necessary for the following subtraction)	$\begin{matrix} 25 & 00 & 46.85 \\ \hline 21 & 05 & 57.39 = 21.0993^h \end{matrix}$
Subtracting the first from the second gives the sidereal interval from noon	$\begin{matrix} 21 & 05 & 57.39 = 21.0993^h \end{matrix}$
Reduction for $21^h 05^m 57.4^s$ from Table II, or $-9.8296^s \times 21.0993$	$\begin{matrix} - & 03 & 27.40 \\ \hline 21 & 02 & 29.99 \end{matrix}$
The required astronomical mean time is	May 21, $21 \ 02 \ 29.99$

Page III contains, for Greenwich mean noon of each day, *The Sun's True Longitude* and *Latitude*, and the *Logarithm of the Radius Vector of the Earth*. The longitudes of the Sun are the true geometric longitudes, not corrected for aberration. They are given in two columns, headed λ and λ' ; λ representing the Sun's longitude counted from the true equinox of the date; and λ' , the same co-ordinate counted from the mean equinox of January 0.0^d of the Besselian fictitious year. The latitude is referred to the ecliptic of the date. A column of hourly differences enables the computer to obtain the Sun's longitude for any hour from noon. The hourly differences of the logarithm of the radius vector are likewise given.

The last column on page III contains the *Mean Time of Sidereal Noon*; that is, the number of hours, minutes and seconds after Greenwich mean noon when the first point of Aries passes the meridian of Greenwich. It may be reduced to any meridian by interpolating for the longitude, or to any Greenwich sidereal time by means of the hourly difference, -9.8296^s . The reduction, however, can be taken directly from Table II for reducing intervals of sidereal time to mean solar time; or from Table 8 of BOWDITCH'S *Navigator*.

This column may be used in converting sidereal time to mean time, instead of that on page II. As an illustration, let us take Example 3, above.

It is seen in advance that the sum of the mean time of sidereal noon and the given sidereal time is less than 24 hours. Were it more than 24 hours, the mean time of sidereal noon should be taken out for May 20, that is the preceding astronomical day.

	h	m	s
May 21, the mean time of Greenwich sidereal noon is	20	02	58.75
Reduction for longitude from Table II, or $-9.8296^s \times 6.678$		— 01	05.64
The mean time of local sidereal noon	20	01	53.11
Add the given sidereal time	1	00	46.85 = 1.0130 ^h
The sum is	21	02	39.96
Reduction for 1 ^h 00 ^m 46.85 ^s from Table II, or $-9.8296^s \times 1.0130$		— 00	09.96
The required astronomical mean time	May 21,	21	02 30 00

Page IV contains *The Moon's Semidiameter* and *Equatorial Horizontal Parallax*, for each mean noon and midnight at Greenwich. Columns adjoining those of the horizontal parallax give the change of this quantity in one hour, by means of which it can be reduced to any other Greenwich mean time, in the same way as the Sun's declination and the equation of time in the preceding examples. The sign plus or minus is prefixed to the hourly differences, according as the horizontal parallax is increasing or decreasing.

The reduction of the Moon's semidiameter may be readily found by multiplying the reduction of the horizontal parallax by 0.272, or by simply computing the proportional part.

If, for example, the semidiameter of the Moon is to be taken out for 1901, January 18, 10^h, P. M., Greenwich mean time, we see that the difference of the semidiameters at noon and midnight of January 18 is 5.9''; then,

$$12^h : 10^h = 5.9'' : 4.9'',$$

which is the correction to be added to the semidiameter at noon, because the semidiameter is increasing. The Moon's semidiameter then, for January 18, 10^h, is 15' 38.1''.

The Moon's semidiameter and horizontal parallax are required for all observations of the Moon. When great precision is needed, the hourly differences should be first interpolated for half the interval of Greenwich time from noon or midnight, and a correction applied to the horizontal parallax for the latitude of the place of observation.

The *Mean Time of the Moon's Upper Transit at Greenwich*, is given on page IV to tenths of a minute, and is accompanied by a column of differences for one hour of longitude, by means of which the local time of the Moon's meridian transit may be computed for any other place whose longitude is known. The reduction may be taken by simple inspection from Table II of BOWDITCH's *Navigator*. The last column of page IV contains the *Age* of the Moon, or the time elapsed since the preceding new Moon, to tenths of a day.

Pages V—XII contain *The Moon's Right Ascension* and *Declination*, for each day and hour of Greenwich mean time. They are accompanied by columns of differences for one minute, which are also given at each hour. The Greenwich mean time, which is required for taking out these quantities, may either be taken from a well-regulated chronometer, or may be obtained by applying the longitude converted into time, to the local mean time of the observer. The right ascension or declination is taken out for the day and hour of the Greenwich mean time; the *Diff. for 1 Minute* is multiplied by the minutes and parts of a minute of the Greenwich time, and the product is added to, or subtracted from the quantity, according as the latter is increasing or decreasing.

Thus, suppose the Moon's right ascension and declination are required for 1901, August 3, 10^h 10^m 30^s, astronomical mean time at Greenwich:—

	Right Ascension.			Declination.		
	h	m	s		°	'
August 3, 10 ^h	23	37	54.25	N.	1	59 07.7
Diff. 2.2058 ^s \times 10.5		+ 23.16			+ 02	08.9
August 3, 10 ^h 10 ^m 30 ^s	23	38	17.41	N.	2	01 16.6

The differences interpolated for 5.2^m = 0.09^h are, for the right ascension 2.2058^s, and for the declination +12.275'', which have been used for greater precision.

Page XII contains also the *Phases of the Moon* and the dates of the *Moon's Perigee* and *Apogee*, or least and greatest distances from the Earth.

Pages XIII—XVIII contain the *Lunar Distances*, or the angular distances of the center

of the Moon from the center of the Sun, from the centers of the four brighter planets, and from certain fixed stars, as they would appear to an observer at the center of the Earth. They are given for every third hour of Greenwich mean time, and as the reckoning begins at noon, the dates are astronomical. All the distances which can be observed on the same day, are grouped together under that date; and the columns are read from left to right, across both pages of the same opening. The letter W. or E. is affixed to the name of the Sun, planet or star, to indicate that it is on the west, or east side of the Moon.

An observer on the Earth's surface having measured a lunar distance, corrected it for errors of his instrument and for the semidiameters of the objects, and cleared it from the effects of refraction and parallax, finds the true or geocentric distance, that is, the distance as it would have appeared from the center of the Earth at the moment of observation. By comparing this distance with the corresponding distances contained in the Ephemeris, the Greenwich mean time of the observation can be found.

To lessen the labor of computation, there is given in the Ephemeris, between every two successive distances, the logarithm of the seconds of time in which the distance changes 1"; or, as it is usually called, the *Proportional Logarithm of the Difference*. It is given for the middle instant of the two hours between which it is placed.

For computing the Greenwich time corresponding to a given lunar distance we have the following rule:—

Find in the Almanac the two distances between which the true distance falls; take out the nearer of these, the hours of Greenwich time over it, and the P. L. of Diff. between them.

Find the difference between the true distance and the distance taken from the Almanac; and from the proportional logarithm of this difference, as found in BOWDITCH'S Navigator (Table 45), subtract the P. L. of Diff. taken from the Almanac.

The result is the proportional logarithm of an interval of time to be added to the hours of Greenwich time, taken from the Almanac, when the earlier Almanac-distance is used; or to be subtracted from the hours of Greenwich time, when the later Almanac-distance is used.

Another method is, to add the common logarithm of the difference in seconds between the true and the Almanac-distances to the P. L. of Diff. of the Almanac; the sum will be the common logarithm of the correction to be applied to the hours of Greenwich time. Table 34 of BOWDITCH'S *Navigator* saves the operation of reducing degrees (or hours) and minutes to seconds, and the reverse.

As the P. L. of Diff. in the Ephemeris varies continually, the Greenwich time found by the methods just described may not be sufficiently exact. To correct it for such variation, or second difference, take the difference between the P. L. of Diff. used and the one which follows it in the Ephemeris, (or, more strictly, half the difference of the preceding and following ones). With this difference, and the first correction of the Greenwich time already found, enter Table I, appended to this volume, and take out the corresponding seconds, which are to be added to the approximate Greenwich time when the Prop. Logs. in the Ephemeris are decreasing; or subtracted when they are increasing.

Thus the Greenwich mean time of the observation can be obtained. If the observer has noted the time of observation by a chronometer, the difference of this chronometer-time and the Greenwich mean time will be the error of the chronometer on Greenwich time as found from the lunar distance. In this way lunar distances can be used as a check upon the chronometer. By a series of carefully observed lunar distances on both sides of the Moon, the chronometer-error may generally be ascertained within 20 or 30 seconds.

If the observer has found the local mean time of observation from the observed altitude of one of the bodies, or by a watch regulated to that time by recent observations and corrected for change of longitude in the interval, the difference of this local time and the

Greenwich time found from the lunar distance will be his longitude. A longitude derived by this method should always be considered as uncertain by 5' or more.

As an example of finding the Greenwich mean time from a lunar distance, suppose that in 1901, February 2, the corrected distance of the Moon's center from that of Spica is $80^{\circ} 52'$:—

Corrected distance	80 52 00	
Distance in Ephemeris Feb. 2, III ^h	81 22 01	P. L. 0 2672
Difference	0 30 01	P. L. 0 7779
	h m s	P. L. 0.5107
Time from III ^h (<i>after</i>)	0 55 32	
Corr. for 2d Diff., Table I	— 02	
Greenwich mean time Feb. 2	3 55 30	

By a table of common logarithms, or a table of logarithms of small arcs, the reduction of the Greenwich time would be found thus:—

From Ephemeris	P. L. 0 2672
Diff. of distances, $30' 01'' = 1801''$	log 3.2555
Red. of Greenwich time, $3332^s = 0^h 55^{m} 32^s$	log 3 5227

The result is the same as by the previous method.

Pages 218—249 contain the geocentric ephemerides of the seven major planets. The places given are apparent positions, that is, they are referred to the equator and true equinox of the date, and are corrected for aberration. All the data except meridian passage are given for the instant of Greenwich mean noon. The column *Meridian Passage* shows the hour, minute and tenth of that passage of the planet over the meridian of Greenwich which occurs next after the noon of the date.

The right ascension and declination of a planet are required whenever it is observed for time, latitude or azimuth. The mode of reducing the ephemeris positions of planets to other instants of Greenwich mean time is the same as that given for the Sun on pages 554—555. The local mean time of meridian passage of any planet, at any place, can be found by dividing the proper daily difference of the ephemeris times by 24, multiplying the quotient by the longitude of the place expressed in hours and fractions, and applying the product with its proper sign to the time of Greenwich passage.

Pages 250—271 contain the heliocentric co-ordinates of the seven major planets, and the logarithms of their distances from the Earth. The heliocentric longitude is reckoned, not from the true equinox, as in the preceding ephemerides, but from the mean equinox of the date. It is, therefore, necessary to apply nutation, if the longitude from the true equinox is required. The daily motion is given for the instant of Greenwich mean noon. The column *Reduction to Orbit* contains the correction to be applied to the heliocentric longitudes in order to obtain the longitude counted along the orbit of the planet. This longitude is equal to the distance from the mean equinox to the node, plus the distance from the node to the planet. The heliocentric latitude is counted from the true ecliptic of the date. The *Logarithm of Radius Vector* is the logarithm of the distance of the center of the planet from that of the Sun, at the Greenwich mean noon whose date is given in the first column. The last two columns give, respectively, the logarithm of the true distance of the center of the planet from that of the Earth, for the Greenwich noon indicated on the left hand side of the page, and for the time which is midway between that date and the date next below it. In the case of Mercury, this intermediate date is mean midnight of the same day; in the case of Venus and Mars, it is the mean noon of the day immediately following; in the case of Jupiter and Saturn, it is mean noon of the second day following; and in the case of Uranus and Neptune, mean noon of the fourth day following.

Pages 272—279 contain the rectangular co-ordinates of the center of the Sun, referred to the center of the Earth as the origin, and to the true equator and equinox of each date as the plane and point of reference. Each co-ordinate is given both for Greenwich mean noon, and for Greenwich mean midnight of the same day. The columns *Reduc. to Mean*

Eq'x of Jan. 0.0 give the corrections to be applied to the co-ordinates for noon in order to obtain the corresponding co-ordinates referred to the mean equator and the mean equinox of January 0.0 of the Besselian fictitious year.

Pages 280—283 give for every Greenwich mean noon and midnight the apparent geocentric longitude and latitude of the Moon referred to the true ecliptic and equinox of the date.

Page 284 contains the position of the Moon's equator, the longitude of the Moon's perigee, the mean longitude of the Moon's ascending node, and the Moon's mean longitude.

Page 285 contains the elements of the libration of the Moon, and the Sun's aberration and horizontal parallax. The epochs of greatest libration of the Moon, together with the formulæ for finding the libration in longitude and latitude are given on page 440. *The Sun's Aberration* is the quantity which is to be applied to the true longitude of the Sun in order to obtain its apparent longitude. The correction being negative shows that the apparent longitude as affected by aberration is always less than the true longitude. *The Sun's Equatorial Horizontal Parallax*, given in the next column, is the angle subtended by the radius of the Earth's equator, as seen from the center of the Sun.

Page 286 contains, for each fifth Greenwich mean noon, the values of the principal elements arising from the motion of the equinox. The column *Precession in Longitude from 1901.0* gives the precession from the beginning of the Besselian fictitious year to the date. The *Nutation in Longitude* is the correction to be applied to the longitude of the body referred to the mean equinox of date, in order to obtain that longitude as referred to the true equinox. When the correction is positive, the true longitudes are greater than those referred to the mean equinox; while the contrary is the case when the correction has the negative sign. The *Nutation in R. A.* is equal to that in longitude, multiplied by the cosine of the obliquity of the ecliptic. The *Nutation in Obliquity* is the correction to be applied to the mean obliquity of the date, in order to obtain the true or apparent obliquity. The correction is positive or negative, according as the true obliquity is greater or less than the mean obliquity.

The column *Obliquity* gives the true inclination of the Earth's equator to the ecliptic, exclusive of the terms depending on the Moon's longitude.

Pages 287—288 contain the short period terms of the nutation in longitude and obliquity, which are not included in the values of nutation given on page 286.

PART II—THE EPHEMERIS FOR THE MERIDIAN OF WASHINGTON.

Page 290 contains the formulæ for reducing the positions of the fixed stars, using the notation of BESSEL, and the constants of STRUVE and PETERS. The formulæ by which the star-numbers are computed are also given.

Pages 291—294 contain the logarithms of the *Besselian Star Numbers*, *A, B, C, D*, for each Washington mean midnight. These numbers serve to reduce the mean place of a star at the beginning of the Besselian fictitious year to its apparent place at the dates for which the numbers are given. If used in accordance with the English and French notation, the pair of quantities *A* and *B* must be interchanged with the pair *C* and *D*; that is, *A* must be interchanged with *C*, and *B* with *D*. In the first column, along with the solar day, the sidereal hour of Washington mean midnight is given for certain dates. The sidereal time for which any set of quantities is given can be found by interpolation from these numbers.

The following is an example of the reduction of a star to apparent place by the Besselian star-numbers:—

Computation of the apparent place of π Aquarii for 1901, August 17, for the upper transit at Washington.

	log <i>a</i>	0.4863	log <i>b</i>	6.9652	log <i>c</i>	8.7814	log <i>d</i>	8.4490 <i>n</i>
(Page 293)	log <i>A</i>	9.9573	log <i>B</i>	0.7731	log <i>C</i>	1.1842	log <i>D</i>	1.0738 <i>n</i>
	log <i>a'</i>	1.2596	log <i>b'</i>	9.6250	log <i>c'</i>	9.6437	log <i>d'</i>	8.1412
	log <i>A a</i>	0.4436	log <i>B b</i>	7.7383	log <i>C c</i>	9.9656	log <i>D d</i>	9.5228
	log <i>A a'</i>	1.2169	log <i>B b'</i>	0.3981	log <i>C c'</i>	0.8279	log <i>D d'</i>	9.2150 <i>n</i>

<i>Mean Place, 1901.0,</i>	h m s $a_0 = 22\ 20\ 13.268$	$\delta_0 = +\ 0\ 52\ 29.66$
	$A\ a = +\ 02.777$	$A\ a' = +\ 16.48$
	$B\ b = +\ 00.005$	$B\ b' = +\ 02.50$
	$C\ c = +\ 00.924$	$C\ c' = +\ 05.73$
	$D\ d = +\ 00.333$	$D\ d' = -\ 00.16$
	$E = +\ 00.002$	$\tau\ \mu' = 00.00$
	$\tau\ \mu = 00.000$	
<i>Apparent Place, August 17,</i>	$a = 22\ 20\ 17.309$	$\delta = +\ 0\ 52\ 55.21$

Pages 295—302 contain the *Independent Star-Numbers*, which can frequently be advantageously used instead of the *Besselian Star-Numbers*. These quantities are connected with those of BESSEL by the relations given on page 290, which also contains the formulæ and precepts for the application of both systems of numbers. In order to use the Besselian numbers, it is necessary to have the values of the star-constants, $a, b, c, d, a', b', c', d'$, while the independent star-numbers render it possible to determine the apparent place of a star without computing these star-constants. The column τ gives the fraction of a year, counted from the beginning of the Besselian fictitious year to each date.

The following is an example of the reduction of a star to apparent place by the independent star-numbers:—

Computation of the apparent place of π Aquarii for 1901, August 17, for the upper transit at Washington.

$a_0 = 335\ 03$		$\delta_0 = +\ 0\ 52$	
$G = 18\ 04$		$G + a_0 = 353\ 07$	
$H = 127\ 47$		$H + a_0 = 102\ 50$	
$\log \tau$	8.8239	$\log \tau$	8.8239
$\log g$	1.2814	$\log h$	1.2865
$\log \sin (G + a_0)$	9.0786 <i>n</i>	$\log \sin (H + a_0)$	9.9890
$\log \tan \delta_0$	8.1798	$\log \sec \delta_0$	0.0000
$\log (g)$	7.3637 <i>n</i>	$\log (h)$	0.0994
		<i>Apparent R. A.,</i>	$a = 22\ 20\ 17.311$
$\log g$	1.2814	$\log h$	1.2865
$\log \cos (G + a_0)$	9.9969	$\log \cos (H + a_0)$	9.3466 <i>n</i>
$\log (g')$	1.2783	$\log \sin \delta_0$	8.1797
		$\log (h')$	8.8128 <i>n</i>
		$\delta_0 = +\ 0\ 52\ 29.66$	
		$(g') = +\ 18.98$	
		$(h') = -\ 00.06$	
		$(i) = +\ 06.63$	
		$\tau\ \mu' = 00.00$	
		<i>Apparent Dec.,</i>	$\delta = +\ 0\ 52\ 55.21$
$\log i$	0.8215		
$\log \cos \delta_0$	0.0000		
$\log (i)$	0.8215		

Page 303 contains for every tenth sidereal day the *Besselian* and *Independent Star-Numbers*, exclusive of all short period terms. They are useful in computing ephemerides of stars, similar to those on pages 324—399, for which constants containing short period terms should not be employed.

Pages 304—311 contain the mean places of three hundred and eighty-three stars, for the beginning of the Besselian fictitious year 1901, or, in other words, for the moment when the Sun's mean longitude is 280° .

The annual variations are to be considered as the differential coefficients of each co-ordinate with respect to the time at the beginning of the year.

Pages 312—323 contain the apparent positions of the four northern circum-polar stars, α, δ and λ Ursæ Minoris, and γ Cephei, for every upper transit at Washington. The mean solar time of transit is given in the column *Mean Solar Date*, in order that each transit above and below the pole may be readily identified. Suppose, for example, that the transit of Polaris below the pole on January 26 is to be found, and we wish to know whether it precedes or follows the upper transit of the same date. On page 312, we find that the upper transit occurs January 26.2; the lower transit, therefore, occurs January 26.7. But, the lower transit following that of July 1 (page 318), does not take place until July 2.3

Hence, the lower transit of July 1 precedes the upper one of the same date. A transit occurring very nearly at noon may also be identified without a computation to ascertain the actual mean date, by simply noting the tenth of a day in the column of *Mean Solar Date*.

Pages 324—399 contain, for every tenth upper transit at Washington, the apparent places of 379 stars, being all those given in the list of mean places, except the four northern circum-polars. The mean solar date in the left hand column of each page gives the day and tenth of the transit—so that intermediate transits may be readily identified; and to facilitate interpolation, the differences of each co-ordinate are given for every ten days.

Pages 400—407 contain the apparent right ascension, declination, and semidiameter of the Sun, for Washington mean noon, together with the sidereal time for that instant. Adjoining columns give the seconds of right ascension and of declination for apparent noon, that is, for the moment of transit of the Sun's center over the meridian of Washington. The hours and minutes of right ascension, and the degrees and minutes of declination are always made the same for both mean and apparent noon. In cases where they really differ, the minute which would have been numerically larger is diminished by one, and the seconds increased by sixty, so that the sum of the two remains correct. The hourly motions in right ascension and declination are given for the moment of mean noon, but may be regarded as having the same values for apparent noon.

The *Equation of Time for Apparent Noon* is the correction to be applied to apparent time in order to obtain mean time. It is, therefore, mean time minus apparent time. Each number as given is the mean time of transit of the Sun's center over the meridian of Washington, counted from the nearest noon. The use of all the quantities is substantially the same as in the *Ephemeris for the Meridian of Greenwich*.

Pages 408—415 contain the right ascension, declination, semidiameter, and parallax of the Moon, at the moment of transit over the meridian of Washington. The mean time given in the second column is that of transit of the Moon's center over this meridian. The differences for one hour of longitude are the amounts by which the local mean times of transit over a meridian one hour west of Washington would exceed those given in the column *Mean Time of Transit*, supposing the rate of change to be uniform and equal to what it is at the instant of transit over the meridian of Washington. The next four columns need no especial explanation, except that the differences for one hour of longitude are computed as if the motion of the Moon in right ascension were uniform, or in other words, they are differential coefficients corresponding to the instants of Washington transit. By means of them, when second differences are taken into account, the position of the Moon can be computed with great exactness for the moment of transit over any meridian not more than one hour distant from Washington. To obtain the same accuracy for more distant meridians, we may proceed as follows: Let F represent either the *Mean Time of Transit*, the *Right Ascension of Center*, or the *Geocentric Declination of Center*, and let D represent the corresponding *Difference for One Hour of Longitude*. Write down three successive values of F , together with the corresponding values of D , and difference the latter as in the following scheme; where the middle values, F_0 and D_0 , belong to the Washington culmination from which is to be derived the value of F for the culmination on the meridian whose longitude is λ .

Function.	Diff. for 1 Hour of Longitude.	Δ'	Δ''
F_{-1}	D_{-1}	a'	b
F_0	D_0	a''	
F_{+1}	D_{+1}		

Then, for the culmination at the meridian λ

$$F_{\lambda} = F_0 + \lambda D_0 + \frac{\lambda^2}{96} (a' + a'') + \frac{\lambda^3 b}{3456}$$

where λ must be expressed in hours and decimals of an hour, and is to be taken + or — according as the longitude from Washington is west or east.

The columns of *Sidereal Time of Semidiameter passing Meridian*, etc., do not seem to need any explanation, except that they all refer to the moment of transit. The column *Bright Limbs* is given to indicate to the observer which limbs are illuminated. When one limb is full and the terminator is within $0.05''$ of the opposite limb, both can be well observed, and in such cases both are indicated.

Pages 416—433 contain the geocentric apparent right ascensions and declinations of the seven major planets, together with their semidiameters, horizontal parallaxes, and sidereal times of semidiameters passing the meridian, for the moments of all transits which can be observed over the meridian of Washington.

PART III—PHENOMENA.

This part gives the dates of the principal astronomical phenomena of the year, expressed in Washington mean time, except in the case of the eclipses and the data for the rings of Saturn, which are expressed in Greenwich mean time.

Pages 434—439 contain all necessary data respecting the solar and lunar eclipses which occur during the year.

The eclipse-elements are given for the moment of conjunction of the Sun and Moon in right ascension, but the subsequent tables and results are computed from the exact positions of these bodies as interpolated for each hour of the eclipse. The times and angles designated as the circumstances of a lunar eclipse remain the same throughout all parts of the earth, and require no explanation beyond a mere statement of the fact that in computing them the geometrical diameter of the Earth's shadow has been augmented in the proportion of 51:50. The principal circumstances of each solar eclipse are stated as follows:—

On the line "Eclipse begins" is given the Greenwich mean time at which the Moon's penumbra first touches the Earth, together with the latitude and longitude of the point of contact.

On the line "Central eclipse begins" is given the time when the axis of the Moon's shadow first touches the Earth, and the latitude and longitude of the point of contact follow.

On the line "Central eclipse at noon" is given the time when the axes of the Earth and of the shadow cone lie in the same plane. The latitude and longitude of the point where the axis of the shadow cone then cuts the Earth's surface follow, and there the eclipse will be central and the Sun will be exactly on the meridian.

The phrases "Central eclipse ends" and "Eclipse ends" are followed by a statement of the times when, and the localities where these events occur; the phenomena being the converse of those denoted by the similar phrases for the beginning.

Maps of the Eclipses.—The regions in which each eclipse is visible, are shown upon the map relating to it, from which may be taken approximately, for any place, both the times of the beginning and ending of the eclipse and its magnitude. The dotted curves show the outlines of the shadow for each hour of Greenwich mean time, and therefore pass through all places where the eclipse begins or ends at the hour indicated. To find the instant of beginning at any place, we determine by inspection between what pair of these curved lines the place is situated. The eclipse will then begin between the corresponding hours of Greenwich mean time; and the fraction of the hour may be determined by dividing the hour in the same proportion as the space representing it on the map is divided by the place in question. This division may be made a little more exact by allowing for the changes in the spaces as indicated by their varying width. The Greenwich mean time thus found must be reduced to local mean time by applying the longitude.

As an example, suppose we wish to find the time at which the eclipse of 1901, Nov. 10, begins and ends at the place whose latitude is 40° N., and whose longitude is 60° E.

For the beginning we compare the distance of the place from the curves of 17^h and 18^h and find it to correspond to about 16 minutes from the former, thus giving for the approximate time of beginning $17^h 16^m$; for the end we compare the distance of the place from the curves of 20^h and 21^h and find it to be about 18 minutes from the former, thus

giving for the approximate time of ending $20^h 18^m$, and both of these results are probably correct to within 2 or 3 minutes. Changing to local mean time we shall have:—

		Beginning.			Ending.		
		d	h	m	d	h	m
Greenwich mean time,	Nov.	10	17	16	10	20	18
Longitude east			04	00		04	00
Local mean time	Nov.	10	21	16	11	00	18

In the case of total and annular eclipses, a rough estimate of the magnitude of the eclipse may be obtained from the position of the place relatively to the central line and to the limit. On the central line, the eclipse is annular or total, while on the limit, the limb of the Moon only grazes that of the Sun.

More Accurate Computations.—A more accurate determination of the phases, as visible at any point of the Earth's surface, may be obtained from the Besselian elements which are given for every ten minutes of Greenwich mean time. Their geometric signification is as follows:—

Let us imagine a plane passing through the center of the Earth, perpendicular to the right line joining the centers of the Sun and Moon. This latter line is the axis of the Moon's shadow, and the plane is called the *fundamental plane* or plane of xy . We take the intersection of this plane with that of the Earth's equator as the axis of X , and the center of the Earth as the origin of co-ordinates. The axis of Y is perpendicular to that of X , and directed toward the north; x and y are then the co-ordinates of the point in which the axis of the shadow intersects the fundamental plane, and they are here expressed in terms of the Earth's equatorial radius as unity. The angle d , of which the sine and cosine are both given, is the declination of that point of the celestial sphere toward which the axis of the shadow is directed; or in other words, it is the declination of the center of the Sun as seen from the center of the Moon. The angle μ is the Greenwich hour-angle of this same point of the celestial sphere.

The quantities l and l' are the radii of the shadow-cones upon the fundamental plane, l corresponding to the penumbra, and l' to the umbra, or annulus. The notation is that of CHAUVENET'S *Spherical and Practical Astronomy*, in which l' is regarded as positive for an annular, and negative for a total eclipse.

The angles f and f' , the tangents of which are given, are the angles which the elements of the respective shadow-cones make with the axis of the shadow; or, they are the semi-angles of the two cones.

In order to facilitate interpolation to any required moment, the logarithms of the changes of x , y and μ , in one minute of time are given at the bottom of the table.

The method of computing an eclipse from the given elements is as follows:—It is premised that the moments of beginning and ending are those at which the distance of the observer from the axis of the shadow or penumbra is equal to the radius of the latter at the point of observation. To find this distance and radius we compute—

(1) The co-ordinates, ξ , η and ζ , of the observer, at some assumed moment of Greenwich mean time, as near as practicable to the true time of the required phase, together with their variations for one minute.

(2) The co-ordinates x and y of the axis of the shadow at the same moment, which, with their variations for one minute, are taken from the tables of elements.

(3) Hence, the position and motion of the observer relative to the axis of the shadow.

(4) The radius of the penumbra or umbra at a distance from the fundamental plane equal to that of the observer.

(5) Then, assuming the motions to be uniform, we determine the time required for the observer to be brought to a distance from the axis of the shadow equal to this radius.

The formulæ and directions for the several steps in the computation are as follow:—

(1) Find $\rho \cos \varphi'$ and $\rho \sin \varphi'$, which are the geocentric co-ordinates of the station referred

to the Earth's equator, ρ being the distance from the center of the Earth, and φ' the geocentric latitude. These co-ordinates may be obtained from geodetic tables, or may be computed from the following table based on CLARK'S spheroid of 1866, by the formulæ—

$$\rho \cos \varphi' = F \cos \varphi$$

$$\rho \sin \varphi' = \frac{\sin \varphi}{G}$$

φ being, as usual, the geographic latitude.

Table for Computing the Geocentric Co-ordinates of a Place.

φ	Log F .	Log G .
0°	0.00000	0.00295
5	0.00001	0.00294
10	0.00004	0.00291
15	0.00010	0.00285
20	0.00017	0.00278
25	0.00026	0.00269
30	0.00037	0.00258
35	0.00048	0.00247
40	0.00061	0.00234
45	0.00074	0.00221
50	0.00086	0.00209
55	0.00099	0.00196
60	0.00111	0.00184
65	0.00121	0.00174
70	0.00130	0.00165
75	0.00138	0.00157
80	0.00143	0.00152
85	0.00146	0.00149
90	0.00147	0.00147

For the assumed Greenwich mean time of computation, take from the table of elements the values of $\sin d$, $\cos d$, and μ . Then with λ , for the longitude west from Greenwich, the co-ordinates of the observer will be:—

$$\xi = \rho \cos \varphi' \sin (\mu - \lambda)$$

$$\eta = \rho \sin \varphi' \cos d - \rho \cos \varphi' \sin d \cos (\mu - \lambda)$$

$$\zeta = \rho \sin \varphi' \sin d + \rho \cos \varphi' \cos d \cos (\mu - \lambda)$$

and their variations in one minute of mean time will be:—

$$\xi' = [7.63992] \rho \cos \varphi' \cos (\mu - \lambda)$$

$$\eta' = [7.63992] \rho \cos \varphi' \sin d \sin (\mu - \lambda) = [7.63992] \xi \sin d$$

ζ' is not needed.

(2) For the same assumed moment of Greenwich mean time, take from the tables of elements the co-ordinates x and y of the axis of the shadow together with their variations for one minute, which are equal to one-tenth of the differences of two consecutive numbers. These variations are represented by x' and y' , and their logarithms are given at the foot of the tables.

(3) The distance m and position-angle M of the axis of the shadow relative to the observer, and the relative motions, n and N , are computed by the formulæ:—

$$m \sin M = x - \xi$$

$$m \cos M = y - \eta$$

$$n \sin N = x' - \xi'$$

$$n \cos N = y' - \eta'$$

(4) The radius L of the shadow or penumbra at the distance ζ from the fundamental plane is computed by the formula

$$L = l - \zeta \tan f$$

l and f being found in the table of elements, and ζ computed in (1).

(5) If the time chosen for computation is exactly that of the beginning or ending of the eclipse, we shall have—

$$m = L$$

But, as this condition will rarely be fulfilled on a first trial, a correction τ to the assumed time is computed thus: Find the angle ψ from the equation,

$$\sin \psi = \frac{m \sin (M - N)}{L}$$

There will be two values to this angle, of which one will be in the first and the other in the second quadrant when $\sin \psi$ is positive, and one in the third and the other in the fourth when $\sin \psi$ is negative; but simplicity will be gained by taking only that value of ψ for which $\cos \psi$ is positive. This value lies between the limits $+90^\circ$ and -90° . The correction τ to the assumed time of beginning or ending will be found in minutes, from—

$$\tau = - \frac{m \cos (M - N)}{n} - \frac{L \cos \psi}{n} \quad \text{For beginning:}$$

$$\tau = - \frac{m \cos (M - N)}{n} + \frac{L \cos \psi}{n} \quad \text{For ending:}$$

One such pair of values of τ cannot, however, give the times of both beginning and ending with accuracy. To attain that, we must commence the computation by assuming two times, one near the beginning, and the other near the ending of the eclipse; both of which may be derived from the chart with sufficient exactness. The computation for the first assumed time will give a small value of τ which, when applied to the assumed time, will give the beginning of the eclipse nearly correctly, and a large value which will give an inaccurate time of ending. Similarly the computation for the second assumed time will give a small and nearly correct value of τ , for finding the time of ending, and a large and inaccurate negative value for finding the time of beginning. We shall thus deduce two times of each phase, only one of which is to be regarded as approximately correct.

The more accurate times of beginning and ending may now be taken in place of the first assumed ones, and the whole computation may be repeated, thus leading to a pair of values of τ , which should be very small and accurate. Such a repetition of the computation will in general be advisable, to guard against accidental numerical errors, but a second approximation may be obtained without it, by means of the following theorem:

THEOREM.—*The error of each result is approximately proportional to the square of the correction τ , multiplied by the sine of the sun's hour-angle, $(\mu - \lambda)$, for the middle of the interval between the time of computation and that of the phase.*

To apply this theorem we find the two values of $\tau^2 \sin (\mu - \lambda)$ corresponding to one of the assumed times, and after determining the ratio of these quantities, which will commonly be a large number, we divide the difference of the results by this ratio. The quotient will be a correction to be applied to the more accurate result in such a way as to make it deviate yet more from the less accurate one. This correction should be positive in the local forenoon, and negative in the afternoon, and its value should never materially exceed $0.001^m \tau^2$.

Unless the times chosen for computation are largely in error, say ten minutes or more, the corrected results thus obtained will be theoretically exact within less than a second. But to guard against numerical errors it is better, after making this final correction, to repeat the computations so far as to obtain new values of m and L for the corrected times. If these two quantities agree within a unit of the fourth place of decimals, the times employed are generally correct within a second of time. If they differ too widely, the computer must use his own judgment as to making further corrections and computations.

It should be remarked that the uncertainties of the solar and lunar tables are such that an unavoidable error of several seconds may exist in the prediction.

Position-angle of Point of Contact.—The position-angle P , of the point of contact, reckoned from the north point of the Sun's limb toward the east, is found by the formula

$$P = N - \psi \pm 180^\circ \quad \text{For beginning:}$$

$$P = N + \psi \quad \text{For ending:}$$

it being assumed that, in each case, the value of ψ is taken between the limits $\pm 90^\circ$.

Computation of the Solar Eclipse of 1901, May 17, for Padang.

The position of Padang is—

$$\text{Latitude, } \varphi = -0^\circ 58' 01''$$

$$\text{Longitude, } \lambda = -100^\circ 20' 32''$$

and its geocentric co-ordinates are:—

$$\rho \sin \varphi' = 8.22431 n$$

$$\rho \cos \varphi' = 9.99994$$

From the Eclipse Charts and the table on page 437 we find the approximate times of the phases to be—

Beginning	May	^d 17 ^h 16 ^m 05	} Greenwich Mean Time.
Total phase		17 17 40	
Ending		17 19 20	
Greenwich Mean Time,	May 17		
		Beginning, 16 ^h 05 ^m	Total Phase, 17 ^h 40 ^m
		Ending, 19 ^h 20 ^m	
	μ	242 11 42	265 56 48
	λ	—100 20 32	—100 20 32
	$\mu - \lambda$	342 32 14	6 17 20
	$\rho \cos \varphi'$	9.99994	9.99994
	$\sin (\mu - \lambda)$	9.47725 <i>n</i>	9.03958
	$\log \xi$	9.47719 <i>n</i>	9.03952
	ξ	— 0.30005	+ 0.10953
	$\rho \sin \varphi'$	8.22431 <i>n</i>	8.22431 <i>n</i>
	$\cos d$	9.97466	9.97462
		8.19897 <i>n</i>	8.19893 <i>n</i>
	(1)	— 0.01581	— 0.01581
	$\rho \cos \varphi'$	9.99994	9.99994
	$\sin d$	9.52104	9.52134
	$\cos (\mu - \lambda)$	9.97951	9.99738
		9.50049	9.51866
	(2)	+ 0.31658	+ 0.33011
(1) — (2)	η	— 0.33239	— 0.34592
	$\rho \sin \varphi' \sin d$	7.74535 <i>n</i>	7.74565 <i>n</i>
	(3)	— 0.00556	— 0.00557
	$\rho \cos \varphi' \cos d \cos (\mu - \lambda)$	9.95411	9.97194
	(4)	+ 0.89973	+ 0.93743
(3) + (4)	ξ	+ 0.89417	+ 0.93186
	const. log	7.63992	7.63992
	$\rho \cos \varphi' \cos (\mu - \lambda)$	9.97945	9.99732
	$\log \xi'$	7.61937	7.63724
	ξ'	+ 0.004163	+ 0.004338
	const. log	7.63992	7.63992
	$\xi \sin d$	8.99823 <i>n</i>	8.56086
	$\log \eta'$	6.63815 <i>n</i>	6.20078

Greenwich Mean Time,	May 17	Beginning. 16 ^h 05 ^m	Total Phase. 17 ^h 40 ^m	Ending. 19 ^h 20 ^m
η'	—	0.000435	+ 0.000159	+ 0.000753
$x - \xi$	—	0.50217	— 0.00182	+ 0.54630
$y - \zeta$	—	0.14416	— 0.00588	+ 0.07869
$x' - \xi'$	+	0.005414	+ 0.005240	+ 0.005849
$y' - \zeta'$	+	0.001751	+ 0.001151	+ 0.000550
$m \sin M$		9.70085 <i>n</i>	7.26007 <i>n</i>	9.73743
$m \cos M$		9.15884 <i>n</i>	7.76938 <i>n</i>	8.89592
$\tan M$		0.54201	9.49069	0.84151
M		253° 58' 58"	197° 11' 55"	81° 48' 12"
$\sin M$		9.98281 <i>n</i>	9.47082 <i>n</i>	9.99554
$\log m$		9.71804	7.78925	9.74189
$n \sin N$		7.73352	7.71933	7.76708
$n \cos N$		7.24329	7.06108	6.74036
$\tan N$		0.49023	0.65825	1.02672
N		72° 04' 39"	77° 36' 40"	84° 37' 41"
$\sin N$		9.97840	9.98977	9.99809
$\log n$		7.75512	7.72956	7.76899
$\tan f$		7.66469	7.66252	7.66468
$\log \xi$		9.95142	9.96935	9.90323
		7.61611	7.63187	7.56791
$\xi \tan f$	+	0.00413	+ 0.00428	+ 0.00370
ζ	+	0.53268	— 0.01305	+ 0.53283
L	+	0.52855	— 0.01733	+ 0.52913
$M - N$		181° 54' 19"	119° 35' 15"	357° 10' 31"
$\sin (M - N)$		8.52176 <i>n</i>	9.93932	8.69268 <i>n</i>
$\log m$		9.71804	7.78925	9.74189
$\csc L$		0.27691	1.76120 <i>n</i>	0.27644
$\sin \psi$		8.51671 <i>n</i>	9.48977 <i>n</i>	8.71101 <i>n</i>
ψ	—	1° 53' .00"	— 17° 59' 28"	— 2° 56' 48"
$\log \frac{m}{n}$		1.96292	0.05969	1.97290
$\cos (M - N)$		9.99976 <i>n</i>	9.69351 <i>n</i>	9.99947
		1.96268 <i>n</i>	9.75320 <i>n</i>	1.97237
$-\frac{m}{n} \cos (M - N)$	+	91.766	+ 0.566	— 93.836
$\log L$		9.72309	8.23880 <i>n</i>	9.72358
$\cos \psi$		9.99977	9.97823	9.99943
$\csc n$		2.24488	2.27044	2.23101
		1.96774	0.48747 <i>n</i>	1.95402
$\frac{L \cos \psi}{n}$	\mp	92.841	\mp 3.072	\pm 89.954
			$\frac{m}{n}$	$\frac{m}{n}$
τ	—	1.075	— 2.506	— 3.882
			+ 3.638	
T		$\frac{h}{16} \frac{m}{05}$	$\frac{h}{17} \frac{m}{40}$	$\frac{h}{19} \frac{m}{20}$
t		16 03.925	17 37.494	19 16.118
			17 43.638	
λ	—	6 41.369	— 6 41.369	— 6 41.369

	Beginning.	Total Phase.	Ending.
Local Mean Time,	May 17 ^d 22 ^h 45.294 ^m	18 ^d 00 ^h 18.863 ^m	18 ^d 01 ^h 57.487 ^m
Duration of totality,		18 00 25.007	6.144

No correction is necessary since the assumed times differ very little from the computed ones.

Therefore we have

	May	d	h	m	s	
Beginning of the eclipse,	May	17	22	45	17.6	} Local Mean Time.
Beginning of total eclipse,	"	18	00	18	51.8	
End of total eclipse,	"	18	00	25	00.4	
End of the eclipse,	"	18	01	57	29.2	

	Beginning.	Ending.
N	72 04.6	84 37.7
$\psi (+ 180^\circ)$	181 53.0	— 2 56.8
Angle of position: P	253 57.6	81 40.9

from the north point of the Sun's disk towards the east for direct image.

Moon's Phases, Libration, etc.—Page 440 gives the Washington mean times of the Moon's phases, apogee, perigee and greatest libration, together with the formulæ for finding the libration in longitude and latitude whenever required.

The Mean Places of Stars Occulted During the Year.—Pages 441—444 contain for the year 1901, the mean places and annual proper motions, applicable to STRIVE's precession, of such stars as will be occulted by the Moon, but are not included in the list given on pages 304 to 311.

Elements of Occultations.—Pages 445—474 give the elements for the prediction of the times of occultations of stars and planets by the Moon. The system of co-ordinates employed is similar to that already described for eclipses, the fundamental plane passing through the center of the Earth, and being taken perpendicular to the line joining the Star and the center of the Moon, but the cone circumscribing the Moon and star is regarded as a cylinder which intercepts the fundamental plane in a circle having the same linear diameter as the Moon.

In the columns referring to the star, those headed *Red'ns from 1901.0* give the quantities necessary to reduce the mean place of the star at the beginning of 1901 to its apparent place at the time of occultation. These reductions are sufficiently accurate to be definitive.

Under the general head, *At Conjunction in R. A.*, are five columns giving certain quantities for the moment of geocentric conjunction of the Moon and star in right ascension, as follows:

The *Washington Mean Time* is the moment at which the two bodies are in geocentric conjunction in right ascension. At that moment the co-ordinate x of the axis of the cylinder on the fundamental plane has the value zero. The column *Hour-Angle H* gives the common geocentric hour-angle of the Moon and star at the same moment, counted from the meridian of Washington—positive toward the west and negative toward the east. Column Y gives the co-ordinate y of the axis of the cylinder upon the fundamental plane at the same moment. Columns x' and y' give the hourly variation of x and y . The linear unit in these columns is the Earth's equatorial radius. The limiting parallels, north and south, show the extreme limits of latitude within which the occultation will be visible.

By the aid of these elements, the Washington mean time of immersion and emersion of a star behind the limb of the Moon may be computed for any part of the Earth by a method nearly the same as that already explained for computing eclipses, only more simple.

We shall first show how to compute an isolated occultation for a particular place, assuming it to be visible there, and then show how all the occultations which will be visible at a place may be selected and computed by a more rapid process.

(1) The geocentric co-ordinates of the place, $\rho \sin \varphi'$ and $\rho \cos \varphi'$, are to be computed by the formulæ and table given in connection with eclipses on page 566.

As in the case of eclipses, it is necessary to have approximate times of the beginning and ending of the phenomena, corresponding to those obtained from the eclipse charts. These times, designated respectively $T + \tau_1$ and $T + \tau_2$, are obtained as follows: The quantity H being the Washington west hour-angle of the two bodies at the moment of geocentric conjunction, $H - \lambda$ will be the local hour-angle of the star at the same moment. Let us call this angle h_0 , putting

$$h_0 = H - \lambda$$

where λ is the longitude west of Washington.

The next step will be to find the approximate moment of apparent conjunction in right ascension as seen from the place, and that may be deduced from the time of geocentric conjunction by the application of an approximate correction taken from Mr. DOWNES's table, printed in the volumes of the Ephemeris for 1882 to 1899. This correction will have the same sign as h_0 .

When DOWNES's table is not available, the correction may be computed from the formulæ,

$$\begin{aligned}\xi_0 &= \rho \cos \varphi' \sin h_0 \\ \xi' &= [9.4192] \cos (h_0 + \frac{1}{3} h_0) \\ \tau &= \frac{\xi_0}{x' - \xi'}\end{aligned}$$

where τ is the approximate interval between the times of geocentric and local conjunction. By applying it to the Washington mean time of the former, as given with the elements, we shall have the Washington mean time of the latter within a few minutes.

The average duration of an occultation is about an hour. Therefore, by subtracting 0.5^h from, and adding it to, the mean time of apparent conjunction, we shall have approximate times of the phases of immersion and emersion for further computation. Let us then put

$$\tau_1 = \tau - 0.5^h$$

$$\tau_2 = \tau + 0.5^h$$

$$T = \text{the Washington mean time of geocentric conjunction in R. A.}$$

$$d = \text{the declination of the star.}$$

(2) Compute for the moments $T + \tau_1$ and $T + \tau_2$ the following quantities, in which we write τ for each of the quantities τ_1 and τ_2 . The latter, when used as angles, are to be changed to arc by multiplying by 15, and the minutes are to be further increased by one-sixth the number of degrees in order to reduce to the sidereal hour-angle.

$$\xi = \rho \cos \varphi' \sin (h_0 + \tau)$$

$$\eta = \rho \sin \varphi' \cos d - \rho \cos \varphi' \sin d \cos (h_0 + \tau)$$

$$\xi' = [9.4192] \rho \cos \varphi' \cos (h_0 + \tau)$$

$$\eta' = [9.4192] \rho \cos \varphi' \sin d \sin (h_0 + \tau) = [9.4192] \xi \sin d$$

$$x = x' \tau$$

$$y = Y + y' \tau$$

Compute m , M , n and N from the equations

$$m \sin M = x - \xi$$

$$m \cos M = y - \eta$$

$$n \sin N = x' - \xi'$$

$$n \cos N = y' - \eta'$$

$$n' = \frac{n}{60} = [8.2218] n$$

$$\sin \psi = [0.5650] m \sin (M - N)$$

And then, t_1 and t_2 from the equations

$$t_1 = -\frac{m}{n'} \cos (M - N) - \frac{[9.4350]}{n'} \cos \psi \quad (\text{Beginning.})$$

$$t_2 = -\frac{m}{n'} \cos (M - N) + \frac{[9.4350]}{n'} \cos \psi \quad (\text{Ending.})$$

The quantities t_1 and t_2 will then be the corrections in minutes to be applied to the respective times $T + \tau_1$ and $T + \tau_2$ to obtain the Washington mean times of the phases.

As in the case of eclipses, the small value of t_1 will give an accurate result for one phase, and the large value an inaccurate result for the other. Both accurate results may then be corrected by comparison with the inaccurate ones, in the way described for eclipses, and a result obtained which will probably be correct within a fraction of a minute of time.

As a check upon the result, it will be advisable to compute ξ , η , x and y for the moments finally obtained. If the times are correct these quantities will fulfil the condition,

$$\sqrt{(x - \xi)^2 + (y - \eta)^2} = 0.2723$$

If $\log m \sin (M - N) = 9.4350$ nearly, a recalculation will generally be necessary to determine whether, numerically, $\sin \psi < 1$, or $\sin \psi > 1$. In the latter case, the impossible value of $\sin \psi$ indicates that an occultation at the given place cannot occur, unless the computed distance from the Moon's limb is within the errors of the ephemerides of the Moon and star.

In such cases of near approach to the Moon's limb, we may take $\psi = 90^\circ$, or 270° , according as $\sin (M - N)$ is positive or negative; and for finding the time of nearest approach,

$$t = -\frac{m \cos (M - N)}{n'}$$

Putting π for the Moon's horizontal parallax, and disregarding the sign of $\sin (M - N)$, the distance from the Moon's limb will be

$$\pi [m \sin (M - N) - 0.2723]$$

or, allowing for the augmentation of the semidiameter,

$$\pi [m \sin (M - N) - 0.2723] [1 + z \sin \pi]$$

where

$$z = \rho \cos \varphi' \cos d \cos (h_0 + \tau) + \rho \sin \varphi' \sin d$$

The position-angle P , of the line from the Moon's center to the star at the times of contact, reckoned from the north point toward the east, is given by the formula:—

$$P = N - \psi \quad \text{for immersion,}$$

$$P = N + \psi \pm 180^\circ \quad \text{for emersion,}$$

it being supposed that the value of ψ , in each case, is taken between the limits $\pm 90^\circ$.

To find the angle from the vertex, we compute the angle C from the formula,

$$\tan C = \frac{\xi + t \xi'}{\eta + t \eta'}$$

in which the value to be used for t will be either t_1 or t_2 , according to the phase for which C is required.

$$V = P - C$$

is the angle from the vertex, also reckoned from the north toward the east.

As an example of an isolated occultation, we will compute that of γ Virginis, on August 18, 1901, for Albany, whose position is—

$$\varphi = + 42^\circ 39' 49.5''$$

$$\lambda = - 0^h 13^m 12.9^s$$

and whose geocentric co-ordinates are—

$$\rho \sin \varphi' = 9.8288$$

$$\rho \cos \varphi' = 9.8672$$

From the elements on page 463, we have

$$T = \begin{array}{cc} h & m \\ & 4 \ 44.2 \end{array}$$

$$H = + 1 \ 27.8$$

and

$$h_0 = H - \lambda = + 1 \ 41.0$$

From DOWNES'S Table, or from the formulæ on page 571, we find the correction to the Washington mean time of geocentric conjunction to be about $+53^m$, therefore the Washington mean time of apparent conjunction at the given place is August 18^d 5^h 37.2^m; subtracting and adding 30^m, we obtain the approximate Washington mean times of immersion and emersion to be used in the computation, thus:

$$\begin{array}{rcl} \tau_1 = + 0 \ 23 & & T + \tau_1 = \text{August } 18 \ 05 \ 07.2 \\ \tau_2 = + 1 \ 23 & & T + \tau_2 = \text{ " } 18 \ 06 \ 07.2 \end{array}$$

Washington Mean Time,	August 18	Immersion.	Emersion
		5 ^h 07.2 ^m	6 ^h 07.2 ^m
h_0	+	1 41.0	+ 1 41.0
τ (in sidereal time)	+	0 23.1	+ 1 23.2
$h_0 + \tau$ (in arc)	+	31° 02'	+ 46° 03'
$\rho \cos \varphi'$		9.8672	9.8672
$\sin (h_0 + \tau)$		9.7122	9.8573
$\log \xi$		9.5794	9.7245
ξ		+ 0.3797	+ 0.5303
$\rho \sin \varphi'$		9.8288	9.8288
$\cos d$		9.9931	9.9931
		9.8219	9.8219
(1)	+	0.6636	+ 0.6636
$\rho \cos \varphi'$		9.8672	9.8672
$\sin d$		9.2488 <i>n</i>	9.2488 <i>n</i>
$\cos (h_0 + \tau)$		9.9329	9.8414
		9.0489 <i>n</i>	8.9574 <i>n</i>
(2)	—	0.1119	— 0.0907
(1) — (2)	+	0.7755	+ 0.7543
const. log		9.4192	9.4192
$\rho \cos \varphi' \cos (h_0 + \tau)$		9.8001	9.7086
$\log \xi'$		9.2193	9.1278
ξ'	+	0.1657	+ 0.1342
const. log		9.4192	9.4192
$\xi \sin d$		8.8282 <i>n</i>	8.9733 <i>n</i>
$\log \eta'$		8.2474 <i>n</i>	8.3925 <i>n</i>
η'	—	0.0177	— 0.0247
$\log x'$		9.7188	9.7188
$\log \tau$		9.5835	0.1409
$\log x$		9.3023	9.8597
x	+	0.2006	+ 0.7239
$\log y'$		9.2343 <i>n</i>	9.2343 <i>n</i>
$\log y' \tau$		8.8178 <i>n</i>	9.3752 <i>n</i>
$y' \tau$	—	0.0657	— 0.2372
Y	+	0.9547	+ 0.9547
y	+	0.8890	+ 0.7175
$x - \xi$	—	0.1791	+ 0.1936
$y - \eta$	+	0.1135	— 0.0368
$x' - \xi'$	+	0.3577	+ 0.3892
$y' - \eta'$	—	0.1538	— 0.1468

Washington Mean Time,	August 18	Immersion.	Emersion.
		5 ^h 07.2 ^m	6 ^h 07.2 ^m
	$m \sin M$	9.2531 <i>n</i>	9.2869
	$m \cos M$	9.0550	8.5658 <i>n</i>
	$\tan M$	0.1981 <i>n</i>	0.7211 <i>n</i>
	M	302° 22'	100° 46'
	$\sin M$	9.9267 <i>n</i>	9.9923
	$\log m$	9.3264	9.2946
	$n \sin N$	9.5535	9.5902
	$n \cos N$	9.1870 <i>n</i>	9.1667 <i>n</i>
	$\tan N$	0.3665 <i>n</i>	0.4235 <i>n</i>
	N	113° 16'	110° 40'
	$\sin N$	9.9632	9.9711
	$\log n$	9.5903	9.6191
	$\text{colog } 60$	8.2218	8.2218
	$\log n'$	7.8121	7.8409
	const. log	0.5650	0.5650
	$\log m$	9.3264	9.2946
	$\sin (M - N)$	9.1991 <i>n</i>	9.2354 <i>n</i>
	$\sin \phi$	9.0905 <i>n</i>	9.0950 <i>n</i>
	ϕ	— 7° 04'	— 7° 09'
	$\log \frac{m}{n'}$	1.5143	1.4537
	$\cos (M - N)$	9.9945 <i>n</i>	9.9935
		1.5088 <i>n</i>	1.4472
	$-\frac{m}{n'} \cos (M - N)$	+ 32.27	— 28.00
	const. log	9.4350	9.4350
	$\text{colog } n'$	2.1879	2.1591
	$\cos \phi$	9.9967	9.9966
		1.6196	1.5907
	$\frac{[9.4350] \cos \phi}{n'}$	— 41.65	+ 38.97
	t	— 9.4	+ 11.0
	$T + \tau$	August 18 05 07.2	h m 6 07.2
Washington Mean Time of Phase,		" 18 04 57.8	6 18.2
	λ	— 00 13.2	— 0 13.2
Albany Mean Time,		" 18 05 11.0	6 31.4
	N	113 16	110 40
	$\phi (+ 180^\circ)$	— 7 04	172 51
Angle of position:	P	120 20	283 31

from the north point of the Moon's limb toward the east, for direct image.

Prediction of Many Occultations for a Given Place.—When it is desired to predict all the occultations which will be visible at some one place, tables may be constructed and applied in such a way as to greatly diminish the labor of computation. In using such tables, the

most convenient course will be to find for each occultation the hour-angle of the star at the moment of apparent conjunction in right ascension, as seen from the place of observation. The table of elements, pages 445 to 474, gives H , the Washington hour-angle at the moment of geocentric conjunction. The corresponding geocentric hour-angle at the place whose west longitude from Washington is λ will be

$$h_0 = H - \lambda$$

The moment of apparent conjunction, as seen from that station, will be given by the condition $\xi = x$; or, substituting the symbolic values of ξ and x ,

$$\rho \cos \varphi' \sin h = x' \tau$$

where h is the west hour-angle of the star at the moment in question, and τ the interval, in hours of mean time, which has elapsed since geocentric conjunction. We shall therefore have

$$h = h_0 + \tau$$

for the hour-angle at the end of the interval τ after geocentric conjunction. In strictness, τ should here be multiplied by $366.25 \div 365.25$, because the star moves a little more than 15° in an hour of mean time; but this factor is so near unity that its neglect will affect the predicted time of conjunction by less than 10 seconds. Thus the equation for finding τ becomes

$$\rho \cos \varphi' \sin (h_0 + \tau) = x' \tau$$

The quantities h_0 and x' being derived immediately from the data of the Ephemeris, the quantity τ is readily obtained by successive approximations, and may be tabulated as a function of h_0 and x' . The computation is effected as follows. We have

$$\sin (h_0 + \tau) = \sin h_0 + 2 \sin \frac{1}{2} \tau \cos (h_0 + \frac{1}{2} \tau) \quad (1)$$

The value of τ in arc being seldom more than 24° we may put τ itself for $2 \sin \frac{1}{2} \tau$. The equation will then become

$$\rho \cos \varphi' \sin h_0 + \tau \rho \cos \varphi' \cos (h_0 + \frac{1}{2} \tau) = x' \tau$$

from which we find

$$\tau = \frac{\rho \cos \varphi' \sin h_0}{x' - \rho \cos \varphi' \cos (h_0 + \frac{1}{2} \tau)} \quad (2)$$

To tabulate τ , we must first have a table of the quantities

$$\begin{aligned} \xi &= \rho \cos \varphi' \sin h \\ \xi' &= [9.41916] \rho \cos \varphi' \cos h \end{aligned} \quad (3)$$

which table may be formed for every 10 minutes (in time) of h . If we then put ξ_0 for the value of ξ corresponding to $h = h_0$ and ξ'_1 for the value of ξ' corresponding to $h = h_0 + \frac{1}{2} \tau$, we shall have

$$\tau = \frac{\xi_0}{x' - \xi'_1} \quad (4)$$

Since we must know the value of τ , approximately, before we can take ξ'_1 from the table, this equation can be solved only by successive approximations, but they converge so rapidly as to offer no difficulty. It will be best to begin by comparing values of τ for the two extremes of x' , namely, $x' = 0.48$ and $x' = 0.60$, because the approximate values of τ can then be interpolated for all the intermediate values of x' . For the first approximation we may assume—

$$\begin{aligned} \frac{1}{2} \tau &= 50^m \sin \frac{4}{3} h_0 \quad (\text{for } x' = 0.48) \\ \frac{1}{2} \tau &= 40^m \sin \frac{4}{3} h_0 \quad (\text{for } x' = 0.60) \end{aligned} \quad (5)$$

or, the approximate values of τ may be taken from Mr. DOWNES's table. It will be best to make the computation for every 30^m of h_0 , and to find the intermediate values of τ for every 10^m by interpolation. Then for each 30^m of h_0 we take ξ' from a table with the argument

$h_0 + \frac{1}{2}\tau$, and $\log \xi$ with the argument h_0 , and thence compute τ by (4). If the value of τ thus arrived at differs more than 3^m from that employed in taking out ξ' , a new value may be used to correct ξ' , and the computation may be repeated. The values corresponding to $x' = 0.51$, $x' = 0.54$, and $x' = 0.57$, can then be computed with the single interpolation of approximate values of τ , and afterward the table can be extended by interpolation to every 0.01 of x' between $x' = 0.48$ and $x' = 0.60$. It will be best to compute τ accurately to 0.001 of an hour in the first place and to drop the last figure in forming the definitive table. The table thus formed will be called Table I.

The values of η and η' may then be tabulated for every degree of the star's declination, and every 10^m of h . It is a mere question of convenience whether to compute the table for negative values of d , since by putting

$$\begin{aligned}\eta_1 &= +\rho \sin \varphi' \cos d \\ \eta_2 &= -\rho \cos \varphi' \sin d \cos h\end{aligned}$$

η_1 may be given in a table of single-entry; and taking η_2 from the table of double-entry for a positive d , we shall have

$$\eta = \eta_1 \pm \eta_2$$

the lower sign being used for a negative d . But the extension of the table for η to negative values of d is so readily made that it will probably be found better to do it, so as to save taking out η_1 and η_2 separately.

This table for η will be called Table II, and the corresponding one for η' with the same arguments Table III. The precepts for using the tables will then be the following:—

From Table I with the arguments x' and $H - \lambda = h_0$ take out the value of τ . It will be sufficient to use the nearest 0.01 of x' . τ will be of the same sign as h_0 . Then, enter Table II with the arguments d (the star's declination) and $h = h_0 + \tau$, and take out the value of η . Form the quantities $y = Y + y'\tau$, and $y - \eta$. If the latter quantity lies between the limits ± 0.28 , it is almost certain that there will be an occultation. If it falls without the limits ± 0.33 , it is almost certain that there will not be an occultation. Having regard only to the absolute value of y' , without respect to its algebraic sign, a convenient rule to adopt for the limits within which an occultation is possible will be—

$$\begin{aligned}y' < 0.10, \text{ limits} &= \pm 0.29 \\ 0.10 < y' < 0.15, \text{ limits} &= \pm 0.30 \\ 0.15 < y' < 0.20, \text{ limits} &= \pm 0.31 \\ 0.20 < y' \text{ limits} &= \pm 0.33\end{aligned}$$

But in exceptional cases a brief occultation may occur when $y - \eta$ somewhat exceeds these limits.

If $y - \eta$ falls between the limits thus indicated, take the values of ξ' and η' from the appropriate tables and compute v , Q and Δ from the equations

$$\begin{aligned}v \sin Q &= y' - \eta' \\ v \cos Q &= x' - \xi' \\ \Delta &= (y - \eta) \cos Q\end{aligned}$$

If $\Delta > 0.2723$ or $\log \Delta > 9.4350$ there will be no occultation, though the Moon may graze the star when $\Delta = 0.2723$ is very small. If $\Delta < 0.2723$, compute

$$\begin{aligned}\tau_1 &= -\frac{y - \eta}{v} \sin Q & \cos P &= \frac{\Delta}{0.2723} \quad (P < 180^\circ) \\ \tau_2 &= \frac{0.2723 \sin P}{v}\end{aligned}$$

We shall then have—

$$\text{Local mean time of immersion,} = T - \lambda + \tau + \tau_1 - \tau_2$$

$$\text{Local mean time of emersion,} = T - \lambda + \tau + \tau_1 + \tau_2$$

$$\text{Position-angle from north toward east at immersion,} = 180^\circ - Q - P$$

$$\text{Position-angle from north toward east at emersion,} = 180^\circ - Q + P$$

In predicting occultations for a given place, the first operation will be to go over the general list in the Ephemeris, and select those which may be visible. The conditions of possible visibility are:—

1. The limiting parallels in the last columns must include the latitude of the place.
2. The quantity $H - \lambda$, taken without regard to sign, must be less than the semi-diurnal arc of the star by at least one hour. On very rare occasions an emersion might be seen in the east horizon, or an immersion in the west, when this difference is a few minutes less than an hour.
3. The Sun must not be much more than an hour above the horizon at the local mean time $T - \lambda$, unless the star is bright enough to be seen in the day time.

The most convenient course will be to write the value of $-\lambda$ on the bottom of a sheet of paper, and passing through the list of occultations, pause over each one for which condition (1) is fulfilled, and examine whether conditions (2) and (3) are fulfilled. If either fails, the computer passes on. Very often it will require some examination to find whether $H - \lambda$ or $T - \lambda$ falls within the limits; in these cases, the computer may mark the occultation for trial and leave the decision for the subsequent operations. The whole list can be gone over in less than a day, and it will probably be found that about one-tenth of the occultations are marked for trial.

Occultations Visible at Washington, pages 475—476.—All the data necessary for observing every occultation of the general list which is visible at Washington are given in detail on these pages.

Phenomena of Planets and Satellites, pages 477—513.—These are, for the most part, sufficiently explained in the body of the work. The following additional explanations are added for completeness:—

Disks of Mercury, Venus and Mars, pages 477—479.—The angle θ , needed in reducing meridian observations, is the angle which the arc of the great circle from the planet to the Sun, makes with the arc from the planet toward the west, reckoned in the direction west, north, east, south. This position-angle is reckoned from 0° to 360° , as in the measurement of double stars, the planet taking the place of the central star. But its measure is 90° greater than in the case of a double star.

We may also regard θ as expressing the angle which the line of cusps makes with the meridian, the positive direction of the meridian being toward the north, and the positive direction of the line of cusps that in which a person following this line would have the illuminated portion of the disk on his right.

Satellites of Mars, page 480.—This page gives the Washington mean times of the greatest eastern and western elongations, together with the position angles and the distance of the satellites from the center of the planet, for elongations visible at Washington.

Satellites of Jupiter, pages 481—507.—The abbreviations designating the phenomena are explained at the foot of each page; the diagram is on page 481.

Satellites of Saturn, pages 508—511.—The diagram and explanations are given on pages 508 and 509, the Washington mean times of greatest elongations on pages 509 to 511, and the apparent elements of the rings on page 511.

The diagrams and ephemerides of *The Satellites of Uranus* are given on page 512, and those of *The Satellites of Neptune* on page 513.

Phenomena, pages 514—515.—The predicted times of the conjunctions, quadratures, and oppositions of the planets with respect to the Sun, are respectively the hours when the longitude of each planet differs from that of the Sun by 0° , $\pm 90^\circ$, or 180° .

The conjunctions of the planets with the Moon, and with each other, are given in right ascension. The degrees and minutes to the right show the difference of declination at the moment of conjunction.

Latitude by Observed Altitude of Polaris.—Table IV replaces the Tables A, B, C, D, given as a *Supplement* to the volumes of the Ephemeris for 1874 to 1881, and is intended for use at sea and reconnaissance on land. It will furnish an approximate value of the latitude, the probable error of which, in so far as the table is concerned, will be a few tenths of a minute of arc.

The directions for using the table are adapted to an assumed right ascension of $1^{\text{h}} 23.2^{\text{m}}$ for Polaris, but somewhat greater accuracy may be insured by substituting the right ascension for the date of observation, from pages 312—323 of this volume.

APPENDIX.

ON THE CONSTRUCTION OF THE AMERICAN EPHEMERIS AND NAUTICAL ALMANAC FOR 1901.

Among American astronomers there are wide differences of opinion respecting the decisions of the Paris Conference of 1896, and for that reason it has been thought best to give, in the American Ephemeris for 1901, two wholly distinct sets of constants for precession, nutation, aberration, and mean obliquity of the ecliptic, namely: first, those of STRUVE and PETERS, and second, those adopted by the PARIS CONFERENCE of 1896. Their values for 1901.0 are as follows:

	Struve and Peters.	Paris Conference.
Precession	50.2640''	50.2566''
Nutation	9.2240''	9.21**''
Aberration	20.4451''	20.47**''
Mean Obliquity	23° 27' 07.29''	23° 27' 07.79''

The constants of STRUVE and PETERS are employed in the quantities on pages 286 to 399, and those of the Paris Conference in the quantities on pages 516 to 546, and thus every one is left free to choose between them. For stars distant more than 11° 30' from either pole, the apparent places derived by using the constants of the Paris Conference differ from those derived by using the constants of STRUVE and PETERS by quantities which never exceed 0.015" in right ascension, and 0.05" in declination, and consequently, throughout that region the star ephemerides given on pages 324 to 399 may be regarded as correct for either set of constants. For the four northern circumpolar stars, and twenty-five other stars whose declinations exceed $\pm 78^\circ 30'$ two sets of ephemerides are given; one depending upon the constants of STRUVE and PETERS, and the other depending upon the constants of the Paris Conference.

The formulæ for the reduction of stars from mean to apparent place, using the constants of STRUVE and PETERS, are given on page 290.

The nutation given on page 286, and used in the Besselian and independent star numbers, page 303; in f' , pages 295 to 302; and in the ephemerides of the apparent places of the fixed stars for every tenth transit, pages 324 to 399; is computed with the values of A' and B' given on page 290: while the nutation used in the Besselian and independent star numbers (except f') given on pages 291 to 302, is computed with the values of A and B given on page 290.

In the daily ephemeris of the four circumpolar stars given on pages 312 to 323, the nutation is computed with

$$\begin{aligned}
 A = & \tau - 0.34252 \sin \Omega \\
 & + 0.00410 \sin 2\Omega \\
 & - 0.02519 \sin 2\odot \\
 & + 0.00293 \sin (\odot + 81^\circ 56') \\
 & + 0.00025 \sin (2\odot - \Omega) \\
 & - 0.00011 \sin (3\odot - I') \\
 & - 0.00005 \sin 2(\odot - \Omega) \\
 & + 0.00010 \sin 2(\odot - I') \\
 & + 0.00009 \sin (2I' - \Omega) \\
 & + 0.00005 \cos I' \\
 & + 0.00004 \sin 2I' \\
 & - 0.00405 \sin 2\zeta \\
 & + 0.00135 \sin (\zeta - I')
 \end{aligned}$$

$$\begin{aligned}
 B = & -9.2240 \cos \Omega \\
 & + 0.0895 \cos 2\Omega \\
 & - 0.5506 \cos 2\odot \\
 & - 0.0092 \cos (\odot + 281^\circ 14') \\
 & - 0.0027 \cos (3\odot - I') \\
 & + 0.0067 \cos (2\odot - \Omega) \\
 & + 0.0024 \cos (2I' - \Omega) \\
 & - 0.0023 \sin I'' \\
 & + 0.0008 \cos 2I'' \\
 & - 0.0885 \cos 2\zeta
 \end{aligned}$$

and the result in right ascension is diminished by the quantity $f - f' = -0.1866'' \sin 2\zeta - 0.0622'' \sin (\zeta - I'')$, which is the same for all stars.

The formulæ for the reduction of the fixed stars, using the constants of the Paris Conference, are given on page 516.

The nutation on page 517 includes only the terms in Ω , 2Ω , L , $2L$, and $3L$. This value of the nutation has been used in all the ephemerides of the Sun, Moon and planets, in the apparent places of the stars for every tenth transit given on pages 542 to 546, and in f' on pages 522 to 529. The nutation used in the daily ephemeris of the circumpolar stars, pages 530 to 541, is computed with

$$\begin{aligned}
 A = & \tau - 0.34215 \sin \Omega - \\
 & + 0.00415 \sin 2\Omega \\
 & - 0.02495 \sin 2L \\
 & + 0.00218 \sin (L + 75.3^\circ) \\
 & - 0.00097 \sin (3L + 78.7^\circ) \\
 & + 0.00025 \sin (2\odot - \Omega) \\
 & - 0.00005 \sin 2(\odot - \Omega) \\
 & + 0.00010 \sin 2(\odot - I'') \\
 & + 0.00009 \sin (2I'' - \Omega) \\
 & + 0.00005 \cos I'' \\
 & + 0.00004 \sin 2I'' \\
 & - 0.00405 \sin 2\zeta \\
 & + 0.00135 \sin (\zeta - I'') \\
 B = & - 9.2100 \cos \Omega \\
 & + 0.0900 \cos 2\Omega \\
 & - 0.5460 \cos 2L \\
 & - 0.0210 \cos (3L + 78.7^\circ) \\
 & + 0.0090 \cos (L - 78.7^\circ) \\
 & + 0.0067 \cos (2\odot - \Omega) \\
 & + 0.0024 \cos (2I'' - \Omega) \\
 & - 0.0023 \sin I'' \\
 & + 0.0008 \cos 2I'' \\
 & - 0.0885 \cos 2\zeta
 \end{aligned}$$

and the result in right ascension is diminished by the quantity $f - f' = -0.1866'' \sin 2\zeta + 0.0622'' \sin (\zeta - I'')$, which is the same for all stars.

The terms of short period in the nutation given on pages 287 and 288, are included in the values of the star numbers on pages 518 to 529. They are derived from tables XXXIV, XXXV, XXXVI, and XXXVII of Professor NEWCOMB'S *Tables of the Sun*, which give the same values as would be found from the formulæ

$$\begin{aligned}
 \delta\psi'' &= \text{Nutation in longitude} = A''\psi \\
 \delta\epsilon'' &= \text{Nutation in obliquity} = -B''
 \end{aligned}$$

where ψ = the luni-solar precession = $50.3709''$, and A'' and B'' are respectively the short period terms in the expressions for A and B on page 516. By short period terms are meant all terms involving the Moon's mean longitude.

The ephemeris of σ Octantis is computed with the same values of A and B as the four northern circumpolar stars, except that the short period terms in 2ζ and $\zeta - I''$ are omitted because the places of the star are given at intervals of ten days.

According to the formulæ on pp. 290 and 516, the star constants $a, b, c, d, a', b', c', d'$, are computed for each star from its mean place at the beginning of the year, but if strict accuracy is required they should be computed from the star's mean place at date, and the following second order terms should be added to the usual expressions for the reduction from mean to apparent place, namely:

$$\begin{aligned}
 & \text{To } a - a_0 \\
 & \begin{aligned}
 & + 0.000003 \tau^2 \sin a \\
 & - 0.000149 \tau^2 \cos a \\
 & - 0.0000650 \tau^2 \sin 2a \\
 & + 0.0000103 \sin 2\Omega \cos 2a \\
 & - 0.0000107 \cos 2\Omega \sin 2a \\
 & + 0.0000620 \sin 2\odot \cos 2a \\
 & - 0.0000622 \cos 2\odot \sin 2a
 \end{aligned}
 \end{aligned}$$

EPH 1901

$$\begin{aligned}
 & \text{To } \delta - \delta_0 \\
 & \begin{aligned}
 & + 0.000975 \tau^2 \sin^2 a \\
 & - 0.000023 \cos 2\Omega \\
 & - 0.000080 \cos 2\Omega \cos 2a \\
 & - 0.000077 \sin 2\Omega \sin 2a \\
 & + 0.000040 \cos 2\odot \\
 & - 0.000467 \cos 2\odot \cos 2a \\
 & - 0.000465 \sin 2\odot \sin 2a
 \end{aligned}
 \end{aligned}$$

$$\begin{array}{lcl}
 \begin{array}{l}
 \text{To } a - a_0 \\
 \text{ }^s \\
 + 0.000\,0513 \sin (\odot + \Omega) \cos 2a \\
 - 0.000\,0507 \cos (\odot + \Omega) \sin 2a \\
 + 0.000\,0097 \sin (\odot - \Omega) \cos 2a \\
 - 0.000\,0053 \cos (\odot - \Omega) \sin 2a
 \end{array} & \left. \begin{array}{l} \\ \\ \\ \\ \end{array} \right\} \tan \delta \sec \delta & \\
 \begin{array}{l}
 \text{To } \delta - \delta_0 \\
 \text{ }^s \\
 - 0.000\,039 \cos (\odot + \Omega) \\
 - 0.000\,380 \cos (\odot + \Omega) \cos 2a \\
 - 0.000\,385 \sin (\odot + \Omega) \sin 2a \\
 - 0.000\,380 \cos (\odot - \Omega) \\
 - 0.000\,040 \cos (\odot - \Omega) \cos 2a \\
 - 0.000\,072 \sin (\odot - \Omega) \sin 2a
 \end{array} & \left. \begin{array}{l} \\ \\ \\ \\ \\ \\ \end{array} \right\} \sin \delta \tan \delta
 \end{array}$$

These terms are negligible for stars whose declination is numerically less than 80° , but in computing the apparent places given in the American Ephemeris they have been applied whenever sensible.

The mean places of 383 stars, pages 304 to 311, are from the new *Catalogue of Fundamental Stars*, prepared in this office principally under the direction of Professor NEWCOMB, and not yet published.

The apparent places of Sirius and Procyon have been corrected for the effect of orbital motion, as determined from AUWERS' investigations, and tabulated in *Astronomical Papers of the American Ephemeris*, vol. I, pages 297-298. The values of these corrections are

Year.	$\Delta a =$	$\Delta \delta =$	$\Delta a =$	$\Delta \delta =$
1901.0	-0.017	$+1.26$	$+0.046$	-0.80
1902.0	-0.034	$+1.17$	$+0.037$	-0.90

The ephemeris of the Sun is constructed from Professor NEWCOMB'S *Tables of the Sun*, *Astronomical Papers of the American Ephemeris*, Vol. VI, part 1.

The adopted value of the mean equatorial horizontal parallax of the Sun is $8.80''$, *Paris Conference*, 1896.

The adopted semidiameter of the Sun at the Earth's mean distance is that of AUWERS', $15' 59.63''$; for the apparent semidiameter this value is increased by $1.15''$ for irradiation, but the constant $1.15''$ is omitted in the computation of eclipses.

The Sun's rectangular equatorial co-ordinates have been computed from the longitudes and latitudes by the following formulæ—

$$\begin{aligned}
 X &= R \cos \lambda, \\
 Y &= R \sin \lambda \cos \omega - 19.3 R \beta \\
 Z &= R \sin \lambda \sin \omega + 44.5 R \beta
 \end{aligned}$$

The reductions to mean equinox, 1901.0, are computed by the formulæ—

$$\begin{aligned}
 \Delta X &= + Y \sec \omega \Delta \lambda \sin 1'', \\
 \Delta Y &= - X \cos \omega \Delta \lambda \sin 1'' + Z \Delta \omega \sin 1'' - 9.1 \tau R \sin (\lambda + 186^\circ) \\
 \Delta Z &= - X \sin \omega \Delta \lambda \sin 1'' - Y \Delta \omega \sin 1'' + 21.0 \tau R \sin (\lambda + 186^\circ)
 \end{aligned}$$

where the numerical coefficients are in units of the seventh place of decimals and R is the Sun's radius vector;

- λ , the Sun's true longitude;
- β , the Sun's true latitude, expressed in seconds of arc;
- ω , the obliquity of the ecliptic;
- $\Delta \lambda$, the reduction of longitude for precession and nutation from January 0.0 of the Besselian fictitious year;
- $\Delta \omega$, the reduction of the mean to the apparent obliquity;
- τ , the fraction of the year since January 0.0 of the Besselian fictitious year.

The latitude, longitude and parallax of the Moon are derived from HANSEN'S *Tables de la Lune*, London, 1857, the mean longitude being corrected in accordance with Professor NEWCOMB'S *Researches on the Motion of the Moon*, Part I, page 268,* and Table XXXIV being replaced by a corrected one.

* *Astronomical Observations made at the U. S. Naval Observatory, Washington, 1875*, Appendix II.

The semidiameter of the Moon is computed from the Moon's horizontal parallax, π , by the formula,

$$S = 0.272\,274\,\pi + 2.5''$$

The constant $2.5''$ is omitted in the computation of eclipses and occultations, as due entirely to telescopic and ocular irradiation.

The ephemerides of Mercury and Venus are derived from Professor NEWCOMB's *Tables* of these planets, *Astronomical Papers of the American Ephemeris*, Vol. VI, parts 2 and 3.

The ephemeris of Mars was computed from manuscript tables based on the corrected elements given on page 182 of the Supplement to the American Ephemeris for 1897, entitled *The elements of the four inner planets and the fundamental constants of Astronomy*, by S. NEWCOMB.

The ephemerides of Jupiter and Saturn are derived from the tables constructed by Dr. GEORGE W. HILL, *Astronomical Papers of the American Ephemeris*, Vol. VII, parts 1 and 2.

The ephemerides of Uranus and Neptune are derived from Professor NEWCOMB's tables of these planets, published in the *Smithsonian Contributions to Knowledge*, No. 262, 1873, Vol. 19 and No. 199, 1865, Vol. 15.

The semidiameters of the planets are computed from the following values:—

	Semidiameter.	Log Dist.	Authority.
Mercury	3.34	0.00	LE VERRIER, <i>Theory of Mercury</i> .
Venus	8.546 ± 0.086	0.00	PEIRCE, from the Washington Observations of 1845 and 1846, made with the Mural Circle.
Mars	2.842 ± 0.057	0.25	
Jupiter (polar)	18.78 ± 0.067	0.70	
Saturn (polar)	8.77 ± 0.039	0.95	
Uranus	1.68 ± 0.3	1.30	
Neptune	1.28	1.48	
Jupiter (equatorial)	20.00	0.70	
Saturn (equatorial)	9.38	0.95	

The elements of eclipses of the Sun and occultations of stars by the Moon are given in accordance with BESSEL's method, using the special forms developed in CHAUVENET's *Spherical and Practical Astronomy*.

The satellites of Mars are computed from manuscript tables based upon elements deduced by Dr. W. S. HARSHMAN. His elements of Deimos are published in the *Astronomical Journal*, 1894, Vol. XIV, p. 147; but those of Phobos are yet in manuscript.

The eclipses of Jupiter's satellites are computed from a *Continuation of DAMOISEAU's Tables*, made in this office. The occultations, transits, etc., are computed from WOOLHOUSE's tables, published in the *British Nautical Almanac* for 1835; Table II of each satellite having been adapted to DAMOISEAU's tables.

The fifth satellite of Jupiter is computed from manuscript tables based upon unpublished elements deduced by Mr. J. ROBERTSON from observations by Professor E. E. BARNARD.

The elongations and conjunctions of the satellites of Saturn are computed from manuscript tables prepared in this office by Mr. C. KEITH. For the six inner satellites these tables are based upon Prof. A. HALL's elements, as published in the *Washington Observations*, 1883, Appendix I; for Hyperion, upon Dr. W. S. EICHELBERGER's elements, in the *Astronomical Journal*, 1892, Vol. XI, pp. 156, 157; and for Iapetus, upon Prof. A. HALL's elements, in the *Washington Observations*, 1882, Appendix I.

The apparent elements of the rings of Saturn are computed from BESSEL's data, except those for the dusky ring.

The elongations of the satellites of Uranus are computed from the data of Professor NEWCOMB's *Uranian and Neptunian Systems*, *Washington Observations*, 1873, Appendix I.

The elongations of the satellite of Neptune are computed from manuscript tables based upon Prof. A. HALL's elements published in the *Astronomical Journal*, 1898, Vol. XIX, p. 65.

The latest available data have been used in compiling the positions of observatories, and many of them have been furnished through the courtesy of the several directors, in response to a circular issued by this office.

The reduction to geocentric latitude, and the logarithm of the radius of the Earth, are derived from Col. A. R. CLARKE's elements of the terrestrial spheroid, published in 1866. From them we have

$$\log e = 8.915\ 2515$$

$$\varphi' - \varphi = -11' \ 40.44'' \sin 2 \varphi + 1.19'' \sin 4 \varphi$$

$$\log \rho = 9.999\ 2645 + 0.000\ 7374 \cos 2 \varphi - 0.000\ 0019 \cos 4 \varphi$$

Table IV, for finding the latitude from an observed altitude of Polaris, is constructed for—

(1) An altitude of Polaris equal to 45° .

(2) A declination of Polaris equal to $+88^\circ \ 46.4'$.

As the American Ephemeris for 1900 does not contain either the star numbers or ephemerides of stars based upon the constants of STRUVE and PETERS, it has been thought best to supply them for that year in the present volume. They are given in a supplement, covering pages 595 to 631, and the arrangement of the terms involving the nutation is the same as described in connection with pages 286 to 399.

The formulæ employed in computing the star numbers are given on page 595. This is followed by a page giving for every tenth day of the year the precession, nutation, obliquity of the ecliptic and the Sun's aberration, and then by thirteen pages of star-numbers. Next come two pages which are in the nature of errata to the Ephemeris for 1900. The mean places of 383 stars, given on pages 302 to 309 of the Ephemeris for 1900, were taken by my predecessor from his new Catalogue of Fundamental Stars, which was then in process of construction, but subsequent investigations have shown that 102 of these places are more or less inaccurate. To correct them a new list of the mean places of these stars is given on pages 610 and 611. Then follow twelve pages containing the daily ephemerides of the 4 northern circumpolar stars, and eight pages containing the ephemerides of 40 stars; some of which have declinations greater than $\pm 78^\circ \ 30'$, and the remainder are inserted to correct errors of the ephemerides given for them in the volume for 1900. Thus we have here the ephemerides of 44 stars given strictly in accordance with the constants of STRUVE and PETERS, and for the remaining 339 stars, in the list of 383, the ephemerides given in the American Ephemeris for 1900 are correct, so far as the said constants are concerned, to within $0.015''$ in right ascension and $0.05''$ in declination.

The ephemeris of the Sun was computed by Mrs. E. B. DAVIS; the Moon's longitude, latitude, semidiameter, and horizontal parallax, by Prof. R. KEITH; the right ascension and declination in the office of the British Nautical Almanac, by an arrangement for exchange of work with that office; the Moon culminations, by Mr. JAMES ROBERTSON; the lunar distances, by Mr. A. DOOLITTLE; Mercury, Venus, Mars, Jupiter, Saturn, Uranus, and Neptune, by Mr. ROBERDEAU BUCHANAN; Jupiter's satellites, by Prof. H. D. TODD; the satellites of Mars, Saturn, Uranus, and Neptune, by Mr. E. C. RUEBSAM; the Besselian and independent star numbers, by Mr. W. AUHAGEN; the apparent places of the fixed stars, by Messrs. H. B. HEDRICK, E. C. RUEBSAM, H. G. HODGKINS, and J. C. HAMMOND; and the occultations, by Mr. W. AUHAGEN. The eclipses were computed and the charts projected by Mr. ROBERDEAU BUCHANAN.

CORRECTION REQUIRED, ON ACCOUNT OF SECOND DIFFERENCES OF THE MOON'S MOTION, IN FINDING THE GREENWICH TIME CORRESPONDING TO A CORRECTED LUNAR DISTANCE.

Approximate Interval.		DIFFERENCE OF THE PROPORTIONAL LOGARITHMS IN THE EPHEMERIS.																									
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
h m	h m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
o o	3 o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
o 10	2 50	o	o	o	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
o 20	2 40	o	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
o 30	2 30	o	1	1	2	2	2	2	3	3	3	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9
o 40	2 20	o	1	1	2	2	3	3	3	4	4	5	5	6	6	6	7	7	8	8	9	9	10	10	10	11	11
o 50	2 10	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13	13	
1 o	2 o	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13	13	14	14
1 10	1 50	1	1	2	2	3	4	4	5	6	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	15
1 20	1 40	1	1	2	3	3	4	4	5	6	6	7	7	8	9	9	10	10	11	12	12	13	14	14	15	15	16
1 30	1 30	1	1	2	3	3	4	4	5	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16
		DIFFERENCE OF THE PROPORTIONAL LOGARITHMS IN THE EPHEMERIS.																									
		54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100		
h m	h m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	
o o	3 o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
o 10	2 50	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	7	
o 20	2 40	7	7	7	7	8	8	8	8	9	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	
o 30	2 30	9	10	10	10	11	11	12	12	12	13	13	13	14	14	14	14	15	15	16	16	16	17	17	17	17	
o 40	2 20	12	12	13	13	13	14	14	15	15	16	16	16	17	17	18	18	19	19	19	20	20	21	21	21	22	
o 50	2 10	14	14	15	15	16	16	17	17	18	19	19	19	20	20	21	21	22	22	22	23	23	24	24	24	25	
1 o	2 o	15	16	16	17	17	18	18	19	19	20	21	21	22	22	23	23	24	24	25	25	26	27	27	27	28	
1 10	1 50	16	17	17	18	18	19	19	20	21	21	22	22	23	24	24	25	25	26	27	27	28	28	29	29	30	
1 20	1 40	17	17	18	19	19	20	20	21	21	22	23	23	24	25	25	26	26	27	28	28	29	29	30	31	31	
1 30	1 30	17	18	18	19	19	20	21	21	22	23	23	24	24	25	25	26	27	27	28	29	29	30	31	31	31	
		DIFFERENCE OF THE PROPORTIONAL LOGARITHMS IN THE EPHEMERIS.																									
		102	104	106	108	110	112	114	116	118	120	122	124	126	128	130	132	134	136	138							
h m	h m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	
o o	3 o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
o 10	2 50	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	
o 20	2 40	13	13	13	13	14	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	17	17	17	17	17	
o 30	2 30	18	18	18	19	19	19	20	20	20	21	21	21	22	22	22	23	23	24	24	24	24	24	24	24	24	
o 40	2 20	22	22	23	23	24	24	25	25	25	26	26	27	27	27	28	28	28	29	29	29	29	29	29	29	30	
o 50	2 10	26	26	26	27	27	28	29	29	29	30	30	31	31	31	32	32	33	33	33	34	34	34	34	34	34	
1 o	2 o	28	29	29	30	30	31	31	32	33	33	34	34	35	35	35	36	36	37	37	37	38	38	38	38	38	
1 10	1 50	30	31	31	32	32	33	34	34	35	35	36	36	37	37	38	38	39	39	39	40	40	40	40	41	41	
1 20	1 40	31	32	33	33	34	34	35	35	36	37	37	38	38	39	39	40	40	41	41	41	42	42	42	42	42	
1 30	1 30	32	32	33	34	34	35	35	36	36	37	38	38	39	39	40	40	41	41	42	42	42	42	42	42	43	

The correction is to be added to the approximate Greenwich time when the proportional logarithms in the Ephemeris are decreasing, and subtracted when they are increasing.

TABLE II.—SIDEREAL INTO MEAN SOLAR TIME.

585

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.										
Side- real.	0 ^h	1 ^h	2 ^h	3 ^h	4 ^h	5 ^h	6 ^h	7 ^h	For Seconds.	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	0 0.000	0 9.830	0 19.659	0 29.489	0 39.318	0 49.148	0 58.977	1 8.807	0	0.000
1	0 0.164	0 9.993	0 19.823	0 29.653	0 39.482	0 49.312	0 59.141	1 8.971	1	0.003
2	0 0.328	0 10.157	0 19.987	0 29.816	0 39.646	0 49.475	0 59.305	1 9.135	2	0.005
3	0 0.491	0 10.321	0 20.151	0 29.980	0 39.810	0 49.639	0 59.469	1 9.298	3	0.008
4	0 0.655	0 10.485	0 20.314	0 30.144	0 39.974	0 49.803	0 59.633	1 9.462	4	0.011
5	0 0.819	0 10.649	0 20.478	0 30.308	0 40.137	0 49.967	0 59.796	1 9.626	5	0.014
6	0 0.983	0 10.813	0 20.642	0 30.472	0 40.301	0 50.131	0 59.960	1 9.790	6	0.016
7	0 1.147	0 10.976	0 20.806	0 30.635	0 40.465	0 50.295	1 0.124	1 9.954	7	0.019
8	0 1.311	0 11.140	0 20.970	0 30.799	0 40.629	0 50.458	1 0.288	1 10.118	8	0.022
9	0 1.474	0 11.304	0 21.134	0 30.963	0 40.793	0 50.622	1 0.452	1 10.281	9	0.025
10	0 1.638	0 11.468	0 21.297	0 31.127	0 40.956	0 50.786	1 0.616	1 10.445	10	0.027
11	0 1.802	0 11.632	0 21.461	0 31.291	0 41.120	0 50.950	1 0.779	1 10.609	11	0.030
12	0 1.966	0 11.795	0 21.625	0 31.455	0 41.284	0 51.114	1 0.943	1 10.773	12	0.033
13	0 2.130	0 11.959	0 21.789	0 31.618	0 41.448	0 51.278	1 1.107	1 10.937	13	0.035
14	0 2.294	0 12.123	0 21.953	0 31.782	0 41.612	0 51.441	1 1.271	1 11.100	14	0.038
15	0 2.457	0 12.287	0 22.117	0 31.946	0 41.776	0 51.605	1 1.435	1 11.264	15	0.041
16	0 2.621	0 12.451	0 22.280	0 32.110	0 41.939	0 51.769	1 1.599	1 11.428	16	0.044
17	0 2.785	0 12.615	0 22.444	0 32.274	0 42.103	0 51.933	1 1.762	1 11.592	17	0.046
18	0 2.949	0 12.778	0 22.608	0 32.438	0 42.267	0 52.097	1 1.926	1 11.756	18	0.049
19	0 3.113	0 12.942	0 22.772	0 32.601	0 42.431	0 52.260	1 2.090	1 11.920	19	0.052
20	0 3.277	0 13.106	0 22.936	0 32.765	0 42.595	0 52.424	1 2.254	1 12.083	20	0.055
21	0 3.440	0 13.270	0 23.099	0 32.929	0 42.759	0 52.588	1 2.418	1 12.247	21	0.057
22	0 3.604	0 13.434	0 23.263	0 33.093	0 42.922	0 52.752	1 2.582	1 12.411	22	0.060
23	0 3.768	0 13.598	0 23.427	0 33.257	0 43.086	0 52.916	1 2.745	1 12.575	23	0.063
24	0 3.932	0 13.761	0 23.591	0 33.420	0 43.250	0 53.080	1 2.909	1 12.739	24	0.066
25	0 4.096	0 13.925	0 23.755	0 33.584	0 43.414	0 53.243	1 3.073	1 12.903	25	0.068
26	0 4.259	0 14.089	0 23.919	0 33.748	0 43.578	0 53.407	1 3.237	1 13.066	26	0.071
27	0 4.423	0 14.253	0 24.082	0 33.912	0 43.742	0 53.571	1 3.401	1 13.230	27	0.074
28	0 4.587	0 14.417	0 24.246	0 34.076	0 43.905	0 53.735	1 3.564	1 13.394	28	0.076
29	0 4.751	0 14.581	0 24.410	0 34.240	0 44.069	0 53.899	1 3.728	1 13.558	29	0.079
30	0 4.915	0 14.744	0 24.574	0 34.403	0 44.233	0 54.063	1 3.892	1 13.722	30	0.082
31	0 5.079	0 14.908	0 24.738	0 34.567	0 44.397	0 54.226	1 4.056	1 13.886	31	0.085
32	0 5.242	0 15.072	0 24.902	0 34.731	0 44.561	0 54.390	1 4.220	1 14.049	32	0.087
33	0 5.406	0 15.236	0 25.065	0 34.895	0 44.724	0 54.554	1 4.384	1 14.213	33	0.090
34	0 5.570	0 15.400	0 25.229	0 35.059	0 44.888	0 54.718	1 4.547	1 14.377	34	0.093
35	0 5.734	0 15.563	0 25.393	0 35.223	0 45.052	0 54.882	1 4.711	1 14.541	35	0.096
36	0 5.898	0 15.727	0 25.557	0 35.386	0 45.216	0 55.046	1 4.875	1 14.705	36	0.098
37	0 6.062	0 15.891	0 25.721	0 35.550	0 45.380	0 55.209	1 5.039	1 14.868	37	0.101
38	0 6.225	0 16.055	0 25.885	0 35.714	0 45.544	0 55.373	1 5.203	1 15.032	38	0.104
39	0 6.389	0 16.219	0 26.048	0 35.878	0 45.707	0 55.537	1 5.367	1 15.196	39	0.106
40	0 6.553	0 16.383	0 26.212	0 36.042	0 45.871	0 55.701	1 5.530	1 15.360	40	0.109
41	0 6.717	0 16.546	0 26.376	0 36.206	0 46.035	0 55.865	1 5.694	1 15.524	41	0.112
42	0 6.881	0 16.710	0 26.540	0 36.369	0 46.199	0 56.028	1 5.858	1 15.688	42	0.115
43	0 7.045	0 16.874	0 26.704	0 36.533	0 46.363	0 56.192	1 6.022	1 15.851	43	0.117
44	0 7.208	0 17.038	0 26.867	0 36.697	0 46.527	0 56.356	1 6.186	1 16.015	44	0.120
45	0 7.372	0 17.202	0 27.031	0 36.861	0 46.690	0 56.520	1 6.350	1 16.179	45	0.123
46	0 7.536	0 17.366	0 27.195	0 37.025	0 46.854	0 56.684	1 6.513	1 16.343	46	0.126
47	0 7.700	0 17.529	0 27.359	0 37.188	0 47.018	0 56.848	1 6.677	1 16.507	47	0.128
48	0 7.864	0 17.693	0 27.523	0 37.352	0 47.182	0 57.011	1 6.841	1 16.671	48	0.131
49	0 8.027	0 17.857	0 27.687	0 37.516	0 47.346	0 57.175	1 7.005	1 16.834	49	0.134
50	0 8.191	0 18.021	0 27.850	0 37.680	0 47.510	0 57.339	1 7.169	1 16.998	50	0.137
51	0 8.355	0 18.185	0 28.014	0 37.844	0 47.673	0 57.503	1 7.332	1 17.162	51	0.139
52	0 8.519	0 18.349	0 28.178	0 38.008	0 47.837	0 57.667	1 7.496	1 17.326	52	0.142
53	0 8.683	0 18.512	0 28.342	0 38.171	0 48.001	0 57.831	1 7.660	1 17.490	53	0.145
54	0 8.847	0 18.676	0 28.506	0 38.335	0 48.165	0 57.994	1 7.824	1 17.654	54	0.147
55	0 9.010	0 18.840	0 28.670	0 38.499	0 48.329	0 58.158	1 7.988	1 17.817	55	0.150
56	0 9.174	0 19.004	0 28.833	0 38.663	0 48.492	0 58.322	1 8.152	1 17.981	56	0.153
57	0 9.338	0 19.168	0 28.997	0 38.827	0 48.656	0 58.486	1 8.315	1 18.145	57	0.156
58	0 9.502	0 19.331	0 29.161	0 38.991	0 48.820	0 58.650	1 8.479	1 18.309	58	0.158
59	0 9.666	0 19.495	0 29.325	0 39.154	0 48.984	0 58.814	1 8.643	1 18.473	59	0.161
Side- real.	0 ^h	1 ^h	2 ^h	3 ^h	4 ^h	5 ^h	6 ^h	7 ^h	For Seconds.	

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.										
Side- real.	8 ^h	9 ^h	10 ^h	11 ^h	12 ^h	13 ^h	14 ^h	15 ^h	For Seconds.	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	I 18.636	I 28.466	I 38.296	I 48.125	I 57.955	2 7.784	2 17.614	2 27.443	0	0.000
1	I 18.800	I 28.630	I 38.459	I 48.289	I 58.119	2 7.948	2 17.778	2 27.607	1	0.003
2	I 18.964	I 28.794	I 38.623	I 48.453	I 58.282	2 8.112	2 17.941	2 27.771	2	0.005
3	I 19.128	I 28.958	I 38.787	I 48.617	I 58.446	2 8.276	2 18.105	2 27.935	3	0.008
4	I 19.292	I 29.121	I 38.951	I 48.780	I 58.610	2 8.440	2 18.269	2 28.099	4	0.011
5	I 19.456	I 29.285	I 39.115	I 48.944	I 58.774	2 8.603	2 18.433	2 28.263	5	0.014
6	I 19.619	I 29.449	I 39.279	I 49.108	I 58.938	2 8.767	2 18.597	2 28.426	6	0.016
7	I 19.783	I 29.613	I 39.442	I 49.272	I 59.101	2 8.931	2 18.761	2 28.590	7	0.019
8	I 19.947	I 29.777	I 39.606	I 49.436	I 59.265	2 9.095	2 18.924	2 28.754	8	0.022
9	I 20.111	I 29.940	I 39.770	I 49.600	I 59.429	2 9.259	2 19.088	2 28.918	9	0.025
10	I 20.275	I 30.104	I 39.934	I 49.763	I 59.593	2 9.423	2 19.252	2 29.082	10	0.027
11	I 20.439	I 30.268	I 40.098	I 49.927	I 59.757	2 9.586	2 19.416	2 29.245	11	0.030
12	I 20.602	I 30.432	I 40.261	I 50.091	I 59.921	2 9.750	2 19.580	2 29.409	12	0.033
13	I 20.766	I 30.596	I 40.425	I 50.255	2 0.084	2 9.914	2 19.744	2 29.573	13	0.035
14	I 20.930	I 30.760	I 40.589	I 50.419	2 0.248	2 10.078	2 19.907	2 29.737	14	0.038
15	I 21.094	I 30.923	I 40.753	I 50.583	2 0.412	2 10.242	2 20.071	2 29.901	15	0.041
16	I 21.258	I 31.087	I 40.917	I 50.746	2 0.576	2 10.405	2 20.235	2 30.065	16	0.044
17	I 21.422	I 31.251	I 41.081	I 50.910	2 0.740	2 10.569	2 20.399	2 30.228	17	0.046
18	I 21.585	I 31.415	I 41.244	I 51.074	2 0.904	2 10.733	2 20.563	2 30.392	18	0.049
19	I 21.749	I 31.579	I 41.408	I 51.238	2 1.067	2 10.897	2 20.727	2 30.556	19	0.052
20	I 21.913	I 31.743	I 41.572	I 51.402	2 1.231	2 11.061	2 20.890	2 30.720	20	0.055
21	I 22.077	I 31.906	I 41.736	I 51.565	2 1.395	2 11.225	2 21.054	2 30.884	21	0.057
22	I 22.241	I 32.070	I 41.900	I 51.729	2 1.559	2 11.388	2 21.218	2 31.048	22	0.060
23	I 22.404	I 32.234	I 42.064	I 51.893	2 1.723	2 11.552	2 21.382	2 31.211	23	0.063
24	I 22.568	I 32.398	I 42.227	I 52.057	2 1.887	2 11.716	2 21.546	2 31.375	24	0.066
25	I 22.732	I 32.562	I 42.391	I 52.221	2 2.050	2 11.880	2 21.709	2 31.539	25	0.068
26	I 22.896	I 32.726	I 42.555	I 52.385	2 2.214	2 12.044	2 21.873	2 31.703	26	0.071
27	I 23.060	I 32.889	I 42.719	I 52.548	2 2.378	2 12.208	2 22.037	2 31.867	27	0.074
28	I 23.224	I 33.053	I 42.883	I 52.712	2 2.542	2 12.371	2 22.201	2 32.031	28	0.076
29	I 23.387	I 33.217	I 43.047	I 52.876	2 2.706	2 12.535	2 22.365	2 32.194	29	0.079
30	I 23.551	I 33.381	I 43.210	I 53.040	2 2.869	2 12.699	2 22.529	2 32.358	30	0.082
31	I 23.715	I 33.545	I 43.374	I 53.204	2 3.033	2 12.863	2 22.692	2 32.522	31	0.085
32	I 23.879	I 33.708	I 43.538	I 53.368	2 3.197	2 13.027	2 22.856	2 32.686	32	0.087
33	I 24.043	I 33.872	I 43.702	I 53.531	2 3.361	2 13.191	2 23.020	2 32.850	33	0.090
34	I 24.207	I 34.036	I 43.866	I 53.695	2 3.525	2 13.354	2 23.184	2 33.013	34	0.093
35	I 24.370	I 34.200	I 44.029	I 53.859	2 3.689	2 13.518	2 23.348	2 33.177	35	0.096
36	I 24.534	I 34.364	I 44.193	I 54.023	2 3.852	2 13.682	2 23.512	2 33.341	36	0.098
37	I 24.698	I 34.528	I 44.357	I 54.187	2 4.016	2 13.846	2 23.675	2 33.505	37	0.101
38	I 24.862	I 34.691	I 44.521	I 54.351	2 4.180	2 14.010	2 23.839	2 33.669	38	0.104
39	I 25.026	I 34.855	I 44.685	I 54.514	2 4.344	2 14.173	2 24.003	2 33.833	39	0.106
40	I 25.190	I 35.019	I 44.849	I 54.678	2 4.508	2 14.337	2 24.167	2 33.996	40	0.109
41	I 25.353	I 35.183	I 45.012	I 54.842	2 4.672	2 14.501	2 24.331	2 34.160	41	0.112
42	I 25.517	I 35.347	I 45.176	I 55.006	2 4.835	2 14.665	2 24.495	2 34.324	42	0.115
43	I 25.681	I 35.511	I 45.340	I 55.170	2 4.999	2 14.829	2 24.658	2 34.488	43	0.117
44	I 25.845	I 35.674	I 45.504	I 55.333	2 5.163	2 14.993	2 24.822	2 34.652	44	0.120
45	I 26.009	I 35.838	I 45.668	I 55.497	2 5.327	2 15.156	2 24.986	2 34.816	45	0.123
46	I 26.172	I 36.002	I 45.832	I 55.661	2 5.491	2 15.320	2 25.150	2 34.979	46	0.126
47	I 26.336	I 36.166	I 45.995	I 55.825	2 5.655	2 15.484	2 25.314	2 35.143	47	0.128
48	I 26.500	I 36.330	I 46.159	I 55.989	2 5.818	2 15.648	2 25.477	2 35.307	48	0.131
49	I 26.664	I 36.493	I 46.323	I 56.153	2 5.982	2 15.812	2 25.641	2 35.471	49	0.134
50	I 26.828	I 36.657	I 46.487	I 56.316	2 6.146	2 15.976	2 25.805	2 35.635	50	0.137
51	I 26.992	I 36.821	I 46.651	I 56.480	2 6.310	2 16.139	2 25.969	2 35.798	51	0.139
52	I 27.155	I 36.985	I 46.815	I 56.644	2 6.474	2 16.303	2 26.133	2 35.962	52	0.142
53	I 27.319	I 37.149	I 46.978	I 56.808	2 6.637	2 16.467	2 26.297	2 36.126	53	0.145
54	I 27.483	I 37.313	I 47.142	I 56.972	2 6.801	2 16.631	2 26.460	2 36.290	54	0.147
55	I 27.647	I 37.476	I 47.306	I 57.136	2 6.965	2 16.795	2 26.624	2 36.454	55	0.150
56	I 27.811	I 37.640	I 47.470	I 57.299	2 7.129	2 16.959	2 26.788	2 36.618	56	0.153
57	I 27.975	I 37.804	I 47.634	I 57.463	2 7.293	2 17.122	2 26.952	2 36.781	57	0.156
58	I 28.138	I 37.968	I 47.797	I 57.627	2 7.457	2 17.286	2 27.116	2 36.945	58	0.158
59	I 28.302	I 38.132	I 47.961	I 57.791	2 7.620	2 17.450	2 27.280	2 37.109	59	0.161
Side- real.	8 ^h	9 ^h	10 ^h	11 ^h	12 ^h	13 ^h	14 ^h	15 ^h	For Seconds.	

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.

Side- real.	16 ^h	17 ^h	18 ^h	19 ^h	20 ^h	21 ^h	22 ^h	23 ^h	For Seconds
m	m s	m s	m s	m s	m s	m s	m s	m s	s s
0	2 37.273	2 47.102	2 56.632	3 6.762	3 16.501	3 26.421	3 36.250	3 46.080	0 0.000
1	2 37.437	2 47.266	2 57.096	3 6.925	3 16.755	3 26.585	3 36.414	3 46.244	1 0.003
2	2 37.601	2 47.430	2 57.260	3 7.089	3 16.910	3 26.748	3 36.578	3 46.407	2 0.005
3	2 37.764	2 47.594	2 57.424	3 7.253	3 17.083	3 26.912	3 36.742	3 46.571	3 0.008
4	2 37.928	2 47.758	2 57.587	3 7.417	3 17.246	3 27.076	3 36.906	3 46.735	4 0.011
5	2 38.092	2 47.922	2 57.751	3 7.581	3 17.410	3 27.240	3 37.069	3 46.899	5 0.014
6	2 38.256	2 48.085	2 57.915	3 7.745	3 17.574	3 27.404	3 37.233	3 47.063	6 0.016
7	2 38.420	2 48.249	2 58.079	3 7.908	3 17.738	3 27.568	3 37.397	3 47.227	7 0.019
8	2 38.584	2 48.413	2 58.243	3 8.072	3 17.902	3 27.731	3 37.561	3 47.390	8 0.022
9	2 38.747	2 48.577	2 58.406	3 8.236	3 18.066	3 27.895	3 37.725	3 47.554	9 0.025
10	2 38.911	2 48.741	2 58.570	3 8.400	3 18.229	3 28.059	3 37.889	3 47.718	10 0.027
11	2 39.075	2 48.905	2 58.734	3 8.564	3 18.393	3 28.223	3 38.052	3 47.882	11 0.030
12	2 39.239	2 49.068	2 58.898	3 8.728	3 18.557	3 28.387	3 38.216	3 48.046	12 0.033
13	2 39.403	2 49.232	2 59.062	3 8.891	3 18.721	3 28.550	3 38.380	3 48.210	13 0.035
14	2 39.566	2 49.396	2 59.226	3 9.055	3 18.885	3 28.714	3 38.544	3 48.373	14 0.038
15	2 39.730	2 49.560	2 59.389	3 9.219	3 19.049	3 28.878	3 38.708	3 48.537	15 0.041
16	2 39.894	2 49.724	2 59.553	3 9.383	3 19.212	3 29.042	3 38.871	3 48.701	16 0.044
17	2 40.058	2 49.888	2 59.717	3 9.547	3 19.376	3 29.206	3 39.035	3 48.865	17 0.046
18	2 40.222	2 50.051	2 59.881	3 9.710	3 19.540	3 29.370	3 39.199	3 49.029	18 0.049
19	2 40.386	2 50.215	3 0.045	3 9.874	3 19.704	3 29.533	3 39.363	3 49.193	19 0.052
20	2 40.549	2 50.379	3 0.209	3 10.038	3 19.868	3 29.697	3 39.527	3 49.356	20 0.055
21	2 40.713	2 50.543	3 0.372	3 10.202	3 20.032	3 29.861	3 39.691	3 49.520	21 0.057
22	2 40.877	2 50.707	3 0.536	3 10.366	3 20.195	3 30.025	3 39.854	3 49.684	22 0.060
23	2 41.041	2 50.870	3 0.700	3 10.530	3 20.359	3 30.189	3 40.018	3 49.848	23 0.063
24	2 41.205	2 51.034	3 0.864	3 10.693	3 20.523	3 30.353	3 40.182	3 50.012	24 0.066
25	2 41.369	2 51.198	3 1.028	3 10.857	3 20.687	3 30.516	3 40.346	3 50.175	25 0.068
26	2 41.532	2 51.362	3 1.192	3 11.021	3 20.851	3 30.680	3 40.510	3 50.339	26 0.071
27	2 41.696	2 51.526	3 1.355	3 11.185	3 21.014	3 30.844	3 40.674	3 50.503	27 0.074
28	2 41.860	2 51.690	3 1.519	3 11.349	3 21.178	3 31.008	3 40.837	3 50.667	28 0.076
29	2 42.024	2 51.853	3 1.683	3 11.513	3 21.342	3 31.172	3 41.001	3 50.831	29 0.079
30	2 42.188	2 52.017	3 1.847	3 11.676	3 21.506	3 31.336	3 41.165	3 50.995	30 0.082
31	2 42.352	2 52.181	3 2.011	3 11.840	3 21.670	3 31.499	3 41.329	3 51.158	31 0.085
32	2 42.515	2 52.345	3 2.174	3 12.004	3 21.834	3 31.663	3 41.493	3 51.322	32 0.087
33	2 42.679	2 52.509	3 2.338	3 12.168	3 21.997	3 31.827	3 41.657	3 51.486	33 0.090
34	2 42.843	2 52.673	3 2.502	3 12.332	3 22.161	3 31.991	3 41.820	3 51.650	34 0.093
35	2 43.007	2 52.836	3 2.666	3 12.496	3 22.325	3 32.155	3 41.984	3 51.814	35 0.096
36	2 43.171	2 53.000	3 2.830	3 12.659	3 22.489	3 32.318	3 42.148	3 51.978	36 0.098
37	2 43.334	2 53.164	3 2.994	3 12.823	3 22.653	3 32.482	3 42.312	3 52.141	37 0.101
38	2 43.498	2 53.328	3 3.157	3 12.987	3 22.817	3 32.646	3 42.476	3 52.305	38 0.104
39	2 43.662	2 53.492	3 3.321	3 13.151	3 22.980	3 32.810	3 42.639	3 52.469	39 0.106
40	2 43.826	2 53.656	3 3.485	3 13.315	3 23.144	3 32.974	3 42.803	3 52.633	40 0.109
41	2 43.990	2 53.819	3 3.649	3 13.478	3 23.308	3 33.138	3 42.967	3 52.797	41 0.112
42	2 44.154	2 53.983	3 3.813	3 13.642	3 23.472	3 33.301	3 43.131	3 52.961	42 0.115
43	2 44.317	2 54.147	3 3.977	3 13.806	3 23.636	3 33.465	3 43.295	3 53.124	43 0.117
44	2 44.481	2 54.311	3 4.140	3 13.970	3 23.800	3 33.629	3 43.459	3 53.288	44 0.120
45	2 44.645	2 54.475	3 4.304	3 14.134	3 23.963	3 33.793	3 43.622	3 53.452	45 0.123
46	2 44.809	2 54.638	3 4.468	3 14.298	3 24.127	3 33.957	3 43.786	3 53.616	46 0.126
47	2 44.973	2 54.802	3 4.632	3 14.461	3 24.291	3 34.121	3 43.950	3 53.780	47 0.128
48	2 45.137	2 54.966	3 4.796	3 14.625	3 24.455	3 34.284	3 44.114	3 53.943	48 0.131
49	2 45.300	2 55.130	3 4.960	3 14.789	3 24.619	3 34.448	3 44.278	3 54.107	49 0.134
50	2 45.464	2 55.294	3 5.123	3 14.953	3 24.782	3 34.612	3 44.442	3 54.271	50 0.137
51	2 45.628	2 55.458	3 5.287	3 15.117	3 24.946	3 34.776	3 44.605	3 54.435	51 0.139
52	2 45.792	2 55.621	3 5.451	3 15.281	3 25.110	3 34.940	3 44.769	3 54.599	52 0.142
53	2 45.956	2 55.785	3 5.615	3 15.444	3 25.274	3 35.104	3 44.933	3 54.763	53 0.145
54	2 46.120	2 55.949	3 5.779	3 15.608	3 25.438	3 35.267	3 45.097	3 54.926	54 0.147
55	2 46.283	2 56.113	3 5.942	3 15.772	3 25.602	3 35.431	3 45.261	3 55.090	55 0.150
56	2 46.447	2 56.277	3 6.106	3 15.936	3 25.765	3 35.595	3 45.425	3 55.254	56 0.153
57	2 46.611	2 56.441	3 6.270	3 16.100	3 25.929	3 35.759	3 45.588	3 55.418	57 0.156
58	2 46.775	2 56.604	3 6.434	3 16.264	3 26.093	3 35.923	3 45.752	3 55.582	58 0.158
59	2 46.939	2 56.768	3 6.598	3 16.427	3 26.257	3 36.086	3 45.916	3 55.746	59 0.161
Side- real.	16 ^h	17 ^h	18 ^h	19 ^h	20 ^h	21 ^h	22 ^h	23 ^h	For Seconds.

TO BE ADDED TO A MEAN TIME INTERVAL.										
Mean Solar.	0 ^h	1 ^h	2 ^h	3 ^h	4 ^h	5 ^h	6 ^h	7 ^h	For Seconds.	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	0 0.000	0 9.856	0 19.713	0 29.569	0 39.426	0 49.282	0 59.139	I 8.995	0	0.000
1	0 0.164	0 10.021	0 19.877	0 29.734	0 39.590	0 49.447	0 59.303	I 9.160	1	0.003
2	0 0.329	0 10.185	0 20.041	0 29.898	0 39.754	0 49.611	0 59.467	I 9.324	2	0.005
3	0 0.493	0 10.349	0 20.206	0 30.062	0 39.919	0 49.775	0 59.632	I 9.488	3	0.008
4	0 0.657	0 10.514	0 20.370	0 30.227	0 40.083	0 49.939	0 59.796	I 9.652	4	0.011
5	0 0.821	0 10.678	0 20.534	0 30.391	0 40.247	0 50.104	0 59.960	I 9.817	5	0.014
6	0 0.986	0 10.842	0 20.699	0 30.555	0 40.412	0 50.268	I 0.124	I 9.981	6	0.016
7	0 1.150	0 11.006	0 20.863	0 30.719	0 40.576	0 50.432	I 0.289	I 10.145	7	0.019
8	0 1.314	0 11.171	0 21.027	0 30.884	0 40.740	0 50.597	I 0.453	I 10.310	8	0.022
9	0 1.478	0 11.335	0 21.191	0 31.048	0 40.904	0 50.761	I 0.617	I 10.474	9	0.025
10	0 1.643	0 11.499	0 21.356	0 31.212	0 41.069	0 50.925	I 0.782	I 10.638	10	0.027
11	0 1.807	0 11.663	0 21.520	0 31.376	0 41.233	0 51.089	I 0.946	I 10.802	11	0.030
12	0 1.971	0 11.828	0 21.684	0 31.541	0 41.397	0 51.254	I 1.110	I 10.967	12	0.033
13	0 2.136	0 11.992	0 21.849	0 31.705	0 41.561	0 51.418	I 1.274	I 11.131	13	0.036
14	0 2.300	0 12.156	0 22.013	0 31.869	0 41.726	0 51.582	I 1.439	I 11.295	14	0.038
15	0 2.464	0 12.321	0 22.177	0 32.034	0 41.890	0 51.746	I 1.603	I 11.459	15	0.041
16	0 2.628	0 12.485	0 22.341	0 32.198	0 42.054	0 51.911	I 1.767	I 11.624	16	0.044
17	0 2.793	0 12.649	0 22.506	0 32.362	0 42.219	0 52.075	I 1.932	I 11.788	17	0.047
18	0 2.957	0 12.813	0 22.670	0 32.526	0 42.383	0 52.239	I 2.096	I 11.952	18	0.049
19	0 3.121	0 12.978	0 22.834	0 32.691	0 42.547	0 52.404	I 2.260	I 12.117	19	0.052
20	0 3.285	0 13.142	0 22.998	0 32.855	0 42.711	0 52.568	I 2.424	I 12.281	20	0.055
21	0 3.450	0 13.306	0 23.163	0 33.019	0 42.876	0 52.732	I 2.589	I 12.445	21	0.057
22	0 3.614	0 13.471	0 23.327	0 33.183	0 43.040	0 52.896	I 2.753	I 12.609	22	0.060
23	0 3.778	0 13.635	0 23.491	0 33.348	0 43.204	0 53.061	I 2.917	I 12.774	23	0.063
24	0 3.943	0 13.799	0 23.656	0 33.512	0 43.368	0 53.225	I 3.081	I 12.938	24	0.066
25	0 4.107	0 13.963	0 23.820	0 33.676	0 43.533	0 53.389	I 3.246	I 13.102	25	0.068
26	0 4.271	0 14.128	0 23.984	0 33.841	0 43.697	0 53.554	I 3.410	I 13.266	26	0.071
27	0 4.435	0 14.292	0 24.148	0 34.005	0 43.861	0 53.718	I 3.574	I 13.431	27	0.074
28	0 4.600	0 14.456	0 24.313	0 34.169	0 44.026	0 53.882	I 3.739	I 13.595	28	0.077
29	0 4.764	0 14.620	0 24.477	0 34.333	0 44.190	0 54.046	I 3.903	I 13.759	29	0.079
30	0 4.928	0 14.785	0 24.641	0 34.498	0 44.354	0 54.211	I 4.067	I 13.924	30	0.082
31	0 5.093	0 14.949	0 24.805	0 34.662	0 44.518	0 54.375	I 4.231	I 14.088	31	0.085
32	0 5.257	0 15.113	0 24.970	0 34.826	0 44.683	0 54.539	I 4.396	I 14.252	32	0.088
33	0 5.421	0 15.278	0 25.134	0 34.990	0 44.847	0 54.703	I 4.560	I 14.416	33	0.090
34	0 5.585	0 15.442	0 25.298	0 35.155	0 45.011	0 54.868	I 4.724	I 14.581	34	0.093
35	0 5.750	0 15.606	0 25.463	0 35.319	0 45.176	0 55.032	I 4.888	I 14.745	35	0.096
36	0 5.914	0 15.770	0 25.627	0 35.483	0 45.340	0 55.196	I 5.053	I 14.909	36	0.099
37	0 6.078	0 15.935	0 25.791	0 35.648	0 45.504	0 55.361	I 5.217	I 15.073	37	0.101
38	0 6.242	0 16.099	0 25.955	0 35.812	0 45.668	0 55.525	I 5.381	I 15.238	38	0.104
39	0 6.407	0 16.263	0 26.120	0 35.976	0 45.833	0 55.689	I 5.546	I 15.402	39	0.107
40	0 6.571	0 16.427	0 26.284	0 36.140	0 45.997	0 55.853	I 5.710	I 15.566	40	0.110
41	0 6.735	0 16.592	0 26.448	0 36.305	0 46.161	0 56.018	I 5.874	I 15.731	41	0.112
42	0 6.900	0 16.756	0 26.612	0 36.469	0 46.325	0 56.182	I 6.038	I 15.895	42	0.115
43	0 7.064	0 16.920	0 26.777	0 36.633	0 46.490	0 56.346	I 6.203	I 16.059	43	0.118
44	0 7.228	0 17.085	0 26.941	0 36.798	0 46.654	0 56.510	I 6.367	I 16.223	44	0.120
45	0 7.392	0 17.249	0 27.105	0 36.962	0 46.818	0 56.675	I 6.531	I 16.388	45	0.123
46	0 7.557	0 17.413	0 27.270	0 37.126	0 46.983	0 56.839	I 6.695	I 16.552	46	0.126
47	0 7.721	0 17.577	0 27.434	0 37.290	0 47.147	0 57.003	I 6.860	I 16.716	47	0.129
48	0 7.885	0 17.742	0 27.598	0 37.455	0 47.311	0 57.168	I 7.024	I 16.881	48	0.131
49	0 8.049	0 17.906	0 27.762	0 37.619	0 47.475	0 57.332	I 7.188	I 17.045	49	0.134
50	0 8.214	0 18.070	0 27.927	0 37.783	0 47.640	0 57.496	I 7.353	I 17.209	50	0.137
51	0 8.378	0 18.234	0 28.091	0 37.947	0 47.804	0 57.660	I 7.517	I 17.373	51	0.140
52	0 8.542	0 18.399	0 28.255	0 38.112	0 47.968	0 57.825	I 7.681	I 17.538	52	0.142
53	0 8.707	0 18.563	0 28.420	0 38.276	0 48.132	0 57.989	I 7.845	I 17.702	53	0.145
54	0 8.871	0 18.727	0 28.584	0 38.440	0 48.297	0 58.153	I 8.010	I 17.866	54	0.148
55	0 9.035	0 18.892	0 28.748	0 38.605	0 48.461	0 58.317	I 8.174	I 18.030	55	0.151
56	0 9.199	0 19.056	0 28.912	0 38.769	0 48.625	0 58.482	I 8.338	I 18.195	56	0.153
57	0 9.364	0 19.220	0 29.077	0 38.933	0 48.790	0 58.646	I 8.502	I 18.359	57	0.156
58	0 9.528	0 19.384	0 29.241	0 39.097	0 48.954	0 58.810	I 8.667	I 18.523	58	0.159
59	0 9.692	0 19.549	0 29.405	0 39.262	0 49.118	0 58.975	I 8.831	I 18.688	59	0.162
Mean Solar.	0 ^h	1 ^h	2 ^h	3 ^h	4 ^h	5 ^h	6 ^h	7 ^h	For Seconds.	

TO BE ADDED TO A MEAN TIME INTERVAL.

Mean Solar.	8 ^h	9 ^h	10 ^h	11 ^h	12 ^h	13 ^h	14 ^h	15 ^h	For Seconds
m	m s	m s	m s	m s	m s	m s	m s	m s	s s
0	1 18.852	1 28.708	1 38.565	1 48.421	1 58.278	2 8.134	2 17.991	2 27.847	0 0.000
1	1 19.016	1 28.873	1 38.729	1 48.585	1 58.442	2 8.298	2 18.155	2 28.011	1 0.003
2	1 19.180	1 29.037	1 38.893	1 48.750	1 58.606	2 8.463	2 18.319	2 28.176	2 0.005
3	1 19.345	1 29.201	1 39.058	1 48.914	1 58.771	2 8.627	2 18.483	2 28.340	3 0.008
4	1 19.509	1 29.365	1 39.222	1 49.078	1 58.935	2 8.791	2 18.648	2 28.504	4 0.011
5	1 19.673	1 29.530	1 39.386	1 49.243	1 59.099	2 8.956	2 18.812	2 28.668	5 0.014
6	1 19.837	1 29.694	1 39.550	1 49.407	1 59.263	2 9.120	2 18.976	2 28.833	6 0.016
7	1 20.002	1 29.858	1 39.715	1 49.571	1 59.428	2 9.284	2 19.141	2 28.997	7 0.019
8	1 20.166	1 30.022	1 39.879	1 49.735	1 59.592	2 9.448	2 19.305	2 29.161	8 0.022
9	1 20.330	1 30.187	1 40.043	1 49.900	1 59.756	2 9.613	2 19.469	2 29.326	9 0.025
10	1 20.495	1 30.351	1 40.207	1 50.064	1 59.920	2 9.777	2 19.633	2 29.490	10 0.027
11	1 20.659	1 30.515	1 40.372	1 50.228	2 0.085	2 9.941	2 19.798	2 29.654	11 0.030
12	1 20.823	1 30.680	1 40.536	1 50.393	2 0.249	2 10.105	2 19.962	2 29.818	12 0.033
13	1 20.987	1 30.844	1 40.700	1 50.557	2 0.413	2 10.270	2 20.126	2 29.983	13 0.036
14	1 21.152	1 31.008	1 40.865	1 50.721	2 0.578	2 10.434	2 20.290	2 30.147	14 0.038
15	1 21.316	1 31.172	1 41.029	1 50.885	2 0.742	2 10.598	2 20.455	2 30.311	15 0.041
16	1 21.480	1 31.337	1 41.193	1 51.050	2 0.906	2 10.763	2 20.619	2 30.476	16 0.044
17	1 21.644	1 31.501	1 41.357	1 51.214	2 1.070	2 10.927	2 20.783	2 30.640	17 0.047
18	1 21.809	1 31.665	1 41.522	1 51.378	2 1.235	2 11.091	2 20.948	2 30.804	18 0.049
19	1 21.973	1 31.829	1 41.686	1 51.542	2 1.399	2 11.255	2 21.112	2 30.968	19 0.052
20	1 22.137	1 31.994	1 41.850	1 51.707	2 1.563	2 11.420	2 21.276	2 31.133	20 0.055
21	1 22.302	1 32.158	1 42.015	1 51.871	2 1.727	2 11.584	2 21.440	2 31.297	21 0.057
22	1 22.466	1 32.322	1 42.179	1 52.035	2 1.892	2 11.748	2 21.605	2 31.461	22 0.060
23	1 22.630	1 32.487	1 42.343	1 52.200	2 2.056	2 11.912	2 21.769	2 31.625	23 0.063
24	1 22.794	1 32.651	1 42.507	1 52.364	2 2.220	2 12.077	2 21.933	2 31.790	24 0.066
25	1 22.959	1 32.815	1 42.672	1 52.528	2 2.385	2 12.241	2 22.098	2 31.954	25 0.068
26	1 23.123	1 32.979	1 42.836	1 52.692	2 2.549	2 12.405	2 22.262	2 32.118	26 0.071
27	1 23.287	1 33.144	1 43.000	1 52.857	2 2.713	2 12.570	2 22.426	2 32.283	27 0.074
28	1 23.451	1 33.308	1 43.164	1 53.021	2 2.877	2 12.734	2 22.590	2 32.447	28 0.077
29	1 23.616	1 33.472	1 43.329	1 53.185	2 3.042	2 12.898	2 22.755	2 32.611	29 0.079
30	1 23.780	1 33.637	1 43.493	1 53.349	2 3.206	2 13.062	2 22.919	2 32.775	30 0.082
31	1 23.944	1 33.801	1 43.657	1 53.514	2 3.370	2 13.227	2 23.083	2 32.940	31 0.085
32	1 24.109	1 33.965	1 43.822	1 53.678	2 3.534	2 13.391	2 23.247	2 33.104	32 0.088
33	1 24.273	1 34.129	1 43.986	1 53.842	2 3.699	2 13.555	2 23.412	2 33.268	33 0.090
34	1 24.437	1 34.294	1 44.150	1 54.007	2 3.863	2 13.720	2 23.576	2 33.432	34 0.093
35	1 24.601	1 34.458	1 44.314	1 54.171	2 4.027	2 13.884	2 23.740	2 33.597	35 0.096
36	1 24.766	1 34.622	1 44.479	1 54.335	2 4.192	2 14.048	2 23.905	2 33.761	36 0.099
37	1 24.930	1 34.786	1 44.643	1 54.499	2 4.356	2 14.212	2 24.069	2 33.925	37 0.101
38	1 25.094	1 34.951	1 44.807	1 54.664	2 4.520	2 14.377	2 24.233	2 34.090	38 0.104
39	1 25.259	1 35.115	1 44.971	1 54.828	2 4.684	2 14.541	2 24.397	2 34.254	39 0.107
40	1 25.423	1 35.279	1 45.136	1 54.992	2 4.849	2 14.705	2 24.562	2 34.418	40 0.110
41	1 25.587	1 35.444	1 45.300	1 55.156	2 5.013	2 14.869	2 24.726	2 34.582	41 0.112
42	1 25.751	1 35.608	1 45.464	1 55.321	2 5.177	2 15.034	2 24.890	2 34.747	42 0.115
43	1 25.916	1 35.772	1 45.629	1 55.485	2 5.342	2 15.198	2 25.054	2 34.911	43 0.118
44	1 26.080	1 35.936	1 45.793	1 55.649	2 5.506	2 15.362	2 25.219	2 35.075	44 0.120
45	1 26.244	1 36.101	1 45.957	1 55.814	2 5.670	2 15.527	2 25.383	2 35.239	45 0.123
46	1 26.408	1 36.265	1 46.121	1 55.978	2 5.834	2 15.691	2 25.547	2 35.404	46 0.126
47	1 26.573	1 36.429	1 46.286	1 56.142	2 5.999	2 15.855	2 25.712	2 35.568	47 0.129
48	1 26.737	1 36.593	1 46.450	1 56.306	2 6.163	2 16.019	2 25.876	2 35.732	48 0.131
49	1 26.901	1 36.758	1 46.614	1 56.471	2 6.327	2 16.184	2 26.040	2 35.897	49 0.134
50	1 27.066	1 36.922	1 46.778	1 56.635	2 6.491	2 16.348	2 26.204	2 36.061	50 0.137
51	1 27.230	1 37.086	1 46.943	1 56.799	2 6.656	2 16.512	2 26.369	2 36.225	51 0.140
52	1 27.394	1 37.251	1 47.107	1 56.964	2 6.820	2 16.676	2 26.533	2 36.389	52 0.142
53	1 27.558	1 37.415	1 47.271	1 57.128	2 6.984	2 16.841	2 26.697	2 36.554	53 0.145
54	1 27.723	1 37.579	1 47.436	1 57.292	2 7.149	2 17.005	2 26.861	2 36.718	54 0.148
55	1 27.887	1 37.743	1 47.600	1 57.456	2 7.313	2 17.169	2 27.026	2 36.882	55 0.151
56	1 28.051	1 37.908	1 47.764	1 57.621	2 7.477	2 17.334	2 27.190	2 37.047	56 0.153
57	1 28.215	1 38.072	1 47.928	1 57.785	2 7.641	2 17.498	2 27.354	2 37.211	57 0.156
58	1 28.380	1 38.236	1 48.093	1 57.949	2 7.806	2 17.662	2 27.519	2 37.375	58 0.159
59	1 28.544	1 38.400	1 48.257	1 58.113	2 7.970	2 17.826	2 27.683	2 37.539	59 0.162
Mean Solar.	8 ^h	9 ^h	10 ^h	11 ^h	12 ^h	13 ^h	14 ^h	15 ^h	For Seconds.

TO BE ADDED TO A MEAN TIME INTERVAL.									
Mean Solar.	16 ^h	17 ^h	18 ^h	19 ^h	20 ^h	21 ^h	22 ^h	23 ^h	For Seconds.
m	m s	m s	m s	m s	m s	m s	m s	m s	s s
0	2 37.704	2 47.560	2 57.417	3 7.273	3 17.129	3 26.986	3 36.842	3 46.699	0 0.000
1	2 37.868	2 47.724	2 57.581	3 7.437	3 17.294	3 27.150	3 37.007	3 46.863	1 0.003
2	2 38.032	2 47.889	2 57.745	3 7.602	3 17.458	3 27.315	3 37.171	3 47.027	2 0.005
3	2 38.196	2 48.053	2 57.909	3 7.766	3 17.622	3 27.479	3 37.335	3 47.192	3 0.008
4	2 38.361	2 48.217	2 58.074	3 7.930	3 17.787	3 27.643	3 37.500	3 47.356	4 0.011
5	2 38.525	2 48.381	2 58.238	3 8.094	3 17.951	3 27.807	3 37.664	3 47.520	5 0.014
6	2 38.689	2 48.546	2 58.402	3 8.259	3 18.115	3 27.972	3 37.828	3 47.685	6 0.016
7	2 38.854	2 48.710	2 58.566	3 8.423	3 18.279	3 28.136	3 37.992	3 47.849	7 0.019
8	2 39.018	2 48.874	2 58.731	3 8.587	3 18.444	3 28.300	3 38.157	3 48.013	8 0.022
9	2 39.182	2 49.039	2 58.895	3 8.751	3 18.608	3 28.464	3 38.321	3 48.177	9 0.025
10	2 39.346	2 49.203	2 59.059	3 8.916	3 18.772	3 28.629	3 38.485	3 48.342	10 0.027
11	2 39.511	2 49.367	2 59.224	3 9.080	3 18.937	3 28.793	3 38.649	3 48.506	11 0.030
12	2 39.675	2 49.531	2 59.388	3 9.244	3 19.101	3 28.957	3 38.814	3 48.670	12 0.033
13	2 39.839	2 49.696	2 59.552	3 9.409	3 19.265	3 29.122	3 38.978	3 48.834	13 0.036
14	2 40.003	2 49.860	2 59.716	3 9.573	3 19.429	3 29.286	3 39.142	3 48.999	14 0.038
15	2 40.168	2 50.024	2 59.881	3 9.737	3 19.594	3 29.450	3 39.307	3 49.163	15 0.041
16	2 40.332	2 50.188	3 0.045	3 9.901	3 19.758	3 29.614	3 39.471	3 49.327	16 0.044
17	2 40.496	2 50.353	3 0.209	3 10.066	3 19.922	3 29.779	3 39.635	3 49.492	17 0.047
18	2 40.661	2 50.517	3 0.373	3 10.230	3 20.086	3 29.943	3 39.799	3 49.656	18 0.049
19	2 40.825	2 50.681	3 0.538	3 10.394	3 20.251	3 30.107	3 39.964	3 49.820	19 0.052
20	2 40.989	2 50.846	3 0.702	3 10.559	3 20.415	3 30.271	3 40.128	3 49.984	20 0.055
21	2 41.153	2 51.010	3 0.866	3 10.723	3 20.579	3 30.436	3 40.292	3 50.149	21 0.057
22	2 41.318	2 51.174	3 1.031	3 10.887	3 20.744	3 30.600	3 40.456	3 50.313	22 0.060
23	2 41.482	2 51.338	3 1.195	3 11.051	3 20.908	3 30.764	3 40.621	3 50.477	23 0.063
24	2 41.646	2 51.503	3 1.359	3 11.216	3 21.072	3 30.929	3 40.785	3 50.642	24 0.066
25	2 41.810	2 51.667	3 1.523	3 11.380	3 21.236	3 31.093	3 40.949	3 50.806	25 0.068
26	2 41.975	2 51.831	3 1.688	3 11.544	3 21.401	3 31.257	3 41.114	3 50.970	26 0.071
27	2 42.139	2 51.995	3 1.852	3 11.708	3 21.565	3 31.421	3 41.278	3 51.134	27 0.074
28	2 42.303	2 52.160	3 2.016	3 11.873	3 21.729	3 31.586	3 41.442	3 51.299	28 0.077
29	2 42.468	2 52.324	3 2.181	3 12.037	3 21.893	3 31.750	3 41.606	3 51.463	29 0.079
30	2 42.632	2 52.488	3 2.345	3 12.201	3 22.058	3 31.914	3 41.771	3 51.627	30 0.082
31	2 42.796	2 52.653	3 2.509	3 12.366	3 22.222	3 32.078	3 41.935	3 51.791	31 0.085
32	2 42.960	2 52.817	3 2.673	3 12.530	3 22.386	3 32.243	3 42.099	3 51.956	32 0.088
33	2 43.125	2 52.981	3 2.838	3 12.694	3 22.551	3 32.407	3 42.264	3 52.120	33 0.090
34	2 43.289	2 53.145	3 3.002	3 12.858	3 22.715	3 32.571	3 42.428	3 52.284	34 0.093
35	2 43.453	2 53.310	3 3.166	3 13.023	3 22.879	3 32.736	3 42.592	3 52.449	35 0.096
36	2 43.617	2 53.474	3 3.330	3 13.187	3 23.043	3 32.900	3 42.756	3 52.613	36 0.099
37	2 43.782	2 53.638	3 3.495	3 13.351	3 23.208	3 33.064	3 42.921	3 52.777	37 0.101
38	2 43.946	2 53.803	3 3.659	3 13.515	3 23.372	3 33.228	3 43.085	3 52.941	38 0.104
39	2 44.110	2 53.967	3 3.823	3 13.680	3 23.536	3 33.393	3 43.249	3 53.106	39 0.107
40	2 44.275	2 54.131	3 3.988	3 13.844	3 23.700	3 33.557	3 43.413	3 53.270	40 0.110
41	2 44.439	2 54.295	3 4.152	3 14.008	3 23.865	3 33.721	3 43.578	3 53.434	41 0.112
42	2 44.603	2 54.460	3 4.316	3 14.173	3 24.029	3 33.886	3 43.742	3 53.598	42 0.115
43	2 44.767	2 54.624	3 4.480	3 14.337	3 24.193	3 34.050	3 43.906	3 53.763	43 0.118
44	2 44.932	2 54.788	3 4.645	3 14.501	3 24.358	3 34.214	3 44.071	3 53.929	44 0.120
45	2 45.096	2 54.952	3 4.809	3 14.665	3 24.522	3 34.378	3 44.235	3 54.091	45 0.123
46	2 45.260	2 55.117	3 4.973	3 14.830	3 24.686	3 34.543	3 44.399	3 54.256	46 0.126
47	2 45.425	2 55.281	3 5.137	3 14.994	3 24.850	3 34.707	3 44.563	3 54.420	47 0.129
48	2 45.589	2 55.445	3 5.302	3 15.158	3 25.015	3 34.871	3 44.728	3 54.584	48 0.131
49	2 45.753	2 55.610	3 5.466	3 15.322	3 25.179	3 35.035	3 44.892	3 54.748	49 0.134
50	2 45.917	2 55.774	3 5.630	3 15.487	3 25.343	3 35.200	3 45.056	3 54.913	50 0.137
51	2 46.082	2 55.938	3 5.795	3 15.651	3 25.508	3 35.364	3 45.220	3 55.077	51 0.140
52	2 46.246	2 56.102	3 5.959	3 15.815	3 25.672	3 35.528	3 45.385	3 55.241	52 0.142
53	2 46.410	2 56.267	3 6.123	3 15.980	3 25.836	3 35.693	3 45.549	3 55.405	53 0.145
54	2 46.574	2 56.431	3 6.287	3 16.144	3 26.000	3 35.857	3 45.713	3 55.570	54 0.148
55	2 46.739	2 56.595	3 6.452	3 16.308	3 26.165	3 36.021	3 45.878	3 55.734	55 0.151
56	2 46.903	2 56.759	3 6.616	3 16.472	3 26.329	3 36.185	3 46.042	3 55.898	56 0.153
57	2 47.067	2 56.924	3 6.780	3 16.637	3 26.493	3 36.350	3 46.206	3 56.063	57 0.156
58	2 47.232	2 57.088	3 6.944	3 16.801	3 26.657	3 36.514	3 46.370	3 56.227	58 0.159
59	2 47.396	2 57.252	3 7.109	3 16.965	3 26.822	3 36.678	3 46.535	3 56.391	59 0.162
Mean Solar.	16 ^h	17 ^h	18 ^h	19 ^h	20 ^h	21 ^h	22 ^h	23 ^h	For Seconds.

TABLE FOR FINDING THE LATITUDE BY AN OBSERVED ALTITUDE OF POLARIS.

Reduce the observed altitude of Polaris to the true altitude.

Reduce the recorded time of observation to the local sidereal time.

If the sidereal time is $\left\{ \begin{array}{l} \text{less than } 1^{\text{h}} 23.2^{\text{m}}, \text{ subtract it from } 1^{\text{h}} 23.2^{\text{m}}; \\ \text{between } 1^{\text{h}} 23.2^{\text{m}} \text{ and } 13^{\text{h}} 23.2^{\text{m}}, \text{ subtract } 1^{\text{h}} 23.2^{\text{m}} \text{ from it;} \\ \text{greater than } 13^{\text{h}} 23.2^{\text{m}}, \text{ subtract it from } 25^{\text{h}} 23.2^{\text{m}}; \end{array} \right.$

and the remainder is the hour-angle of Polaris.

With this hour-angle take out the correction from Table IV (below), and add it to or subtract it from the true altitude, according to its sign. The result is the approximate latitude of the place.

Example.—1901, October 1, at $10^{\text{h}} 40^{\text{m}} 30^{\text{s}}$, P. M., mean solar time, in longitude 29° east of Greenwich, suppose the true altitude of Polaris to be $43^{\circ} 20'$: required the latitude of the place.

Local astronomical mean time	h	m	s
	10	40	30
Reduction from Table III, for $10^{\text{h}} 40^{\text{m}} 30^{\text{s}}$	+	1	45
Greenwich sidereal time of mean noon, October 1, page 165	12	38	5
Reduction from Table III, for longitude ($= 1^{\text{h}} 56^{\text{m}}$ east, or minus)	—	0	19
Sum (having regard to signs) is equal to local sidereal time	23	20	1
	h	m	s
	25	23	12
Subtract sidereal time	23	20	1
Remainder is equal to hour-angle of Polaris	2	3	11
True altitude	+	43	20
Correction from Table IV (below)	—	1	3
Approximate latitude	+	42	17

TABLE IV—1901.

Hour-Angle.	0 ^h	1 ^h	2 ^h	3 ^h	4 ^h	5 ^h
m						
0	— 0 13.6	— 0 11.0	— 0 3.5	— 0 51.6	— 0 36.2	— 0 18.4
5	1 13.6 0.0	1 10.6 0.4	1 2.7 0.8	0 50.4 1.2	0 34.8 1.4	0 16.9 1.5
10	1 13.5 0.1	1 10.1 0.5	1 1.8 0.9	0 49.2 1.2	0 33.4 1.4	0 15.3 1.6
15	1 13.4 0.1	1 9.6 0.6	1 0.9 0.9	0 48.0 1.2	0 32.0 1.5	0 13.7 1.6
20	— 1 13.3	— 1 9.0 0.6	— 1 0.0 1.0	— 0 46.8 1.3	— 0 30.5 1.5	— 0 12.1 1.6
25	1 13.2 0.2	1 8.4 0.6	0 59.0 1.0	0 45.5 1.3	0 29.0 1.5	0 10.5 1.6
30	1 13.0 0.2	1 7.8 0.6	0 58.0 1.0	0 44.2 1.3	0 27.5 1.5	0 8.9 1.6
35	1 12.8 0.3	1 7.2 0.7	0 57.0 1.0	0 42.9 1.3	0 26.0 1.5	0 7.3 1.6
40	— 1 12.5	— 1 6.5 0.7	— 0 56.0 1.1	— 0 41.6 1.3	— 0 24.5 1.5	— 0 5.7 1.6
45	1 12.2 0.3	1 5.8 0.7	0 54.9 1.1	0 40.3 1.3	0 23.0 1.5	0 4.1 1.6
50	1 11.8 0.4	1 5.1 0.8	0 53.8 1.1	0 39.0 1.4	0 21.5 1.5	0 2.5 1.6
55	1 11.4 0.4	1 4.3 0.8	0 52.7 1.1	0 37.6 1.4	0 20.0 1.6	— 0 0.9 1.6
60	— 1 11.0 0.4	— 1 3.5 0.8	— 0 51.6 1.1	— 0 36.2 1.4	— 0 18.4 1.6	+ 0 0.8 1.7
Hour-Angle.	6 ^h	7 ^h	8 ^h	9 ^h	10 ^h	11 ^h
m						
0	+ 0 0.8	+ 0 19.8	+ 0 37.4	+ 0 52.4	+ 1 3.9	+ 1 11.2
5	0 2.4 1.6	0 21.4 1.5	0 38.8 1.4	0 53.5 1.1	1 4.7 0.7	1 11.6 0.4
10	0 4.0 1.6	0 22.9 1.5	0 40.1 1.3	0 54.6 1.1	1 5.4 0.7	1 12.0 0.3
15	0 5.6 1.6	0 24.4 1.5	0 41.4 1.3	0 55.7 1.0	1 6.1 0.7	1 12.3 0.3
20	+ 0 7.2 1.6	+ 0 25.9 1.5	+ 0 42.7 1.3	+ 0 56.7 1.0	+ 1 6.8 0.7	+ 1 12.6 0.2
25	0 8.8 1.6	0 27.4 1.5	0 44.0 1.3	0 57.7 1.0	1 7.5 0.6	1 12.8 0.2
30	0 10.4 1.6	0 28.9 1.4	0 45.3 1.3	0 58.7 1.0	1 8.1 0.6	1 13.0 0.2
35	0 12.0 1.6	0 30.3 1.4	0 46.6 1.2	0 59.7 0.9	1 8.7 0.5	1 13.2 0.1
40	+ 0 13.6 1.6	+ 0 31.7 1.4	+ 0 47.8 1.2	+ 1 0.6 0.9	+ 1 9.2 0.5	+ 1 13.3 0.1
45	0 15.2 1.6	0 33.1 1.5	0 49.0 1.2	1 1.5 0.9	1 9.7 0.5	1 13.4 0.1
50	0 16.8 1.5	0 34.6 1.4	0 50.2 1.1	1 2.4 0.8	1 10.2 0.5	1 13.5 0.1
55	0 18.3 1.5	0 36.0 1.4	0 51.3 1.1	1 3.2 0.7	1 10.7 0.5	1 13.6 0.0
60	+ 0 19.8 1.5	+ 0 37.4 1.4	+ 0 52.4 1.1	+ 1 3.9 0.7	+ 1 11.2 0.5	+ 1 13.6 0.0

SUPPLEMENT.

APPARENT PLACES OF STARS, STAR NUMBERS,
AND OTHER DATA

FOR

THE YEAR 1900,

BASED ON THE CONSTANTS OF

STRUVE AND PETERS.

593

INTRODUCTORY NOTE.

As the American Ephemeris for 1900 does not contain either the star numbers or ephemerides of stars based upon the constants of STRUVE and PETERS, it has been thought best to supply them for that year in the present supplement, where the arrangement of the terms involving the nutation is the same as described in connection with pages 286 to 399.

The formulæ employed in computing the star numbers are given on page 595. This is followed by a page giving for every tenth day of the year the precession, nutation, obliquity of the ecliptic and the Sun's aberration, and then by thirteen pages of star-numbers. Next come two pages which are in the nature of errata to the Ephemeris for 1900. The mean places of 383 stars, given on pages 302 to 309 of the Ephemeris for 1900, were taken by my predecessor from his new Catalogue of Fundamental Stars, which was then in process of construction, but subsequent investigations have shown that 102 of these places are more or less inaccurate. To correct them a new set of the mean places of these stars is given on pages 610 and 611. Then follow twelve pages containing the daily ephemerides of the 4 northern circumpolar stars, and eight pages containing the ephemerides of 40 stars; some of which have declinations greater than $\pm 78^\circ 30'$, and the remainder are inserted to correct errors of the ephemerides given for them in the volume for 1900. Thus we have here the ephemerides of 44 stars given strictly in accordance with the constants of STRUVE and PETERS, and for the remaining 339 stars, in the list of 383, the ephemerides given in the American Ephemeris for 1900 are correct, so far as the said constants are concerned, to within 0.015^s in right ascension and $0.05''$ in declination.

TABLE OF CONTENTS.

BESSEL'S Formulæ for Star-Reductions	595
Precession, Nutation, Obliquity, etc.	596
Besselian Star-Numbers <i>A, B, C, D</i>	597
Independent Star-Numbers <i>f, g, h</i> etc.	601
Besselian and Independent Star-Numbers, exclusive of Short Period Terms, for every Tenth Sidereal Day	609
Mean Places of 102 Standard Stars	610
Apparent Places of Four Circumpolar Stars	612
Apparent Places of Forty Standard Stars	624

FORMULÆ FOR THE REDUCTION OF THE POSITIONS OF THE FIXED STARS, USING THE NOTATION OF BESSEL, AND THE CONSTANTS OF STRUVE AND PETERS.

NOTATION.

- τ , the time, reckoned in units of one year, from the beginning of the Besselian fictitious year, (1899, December 31.039^d = 1900, January 0.099^d, Washington mean time),
 a_0, δ_0 , the star's mean right ascension and declination at the beginning of the fictitious year,
 a, δ , the star's apparent right ascension and declination at the time τ ,
 μ, μ' , the annual proper motion in right ascension and declination,
 \odot , the sun's true longitude,
 Ω , the longitude of the moon's ascending node,
 ω , the obliquity of the ecliptic,

- Γ' , the longitude of the moon's perigee,
 ζ , the moon's mean longitude.

BESSELIAN STAR-NUMBERS.

$$\begin{aligned}
 A &= \tau - 0.34252 \sin \Omega \\
 &\quad + 0.00410 \sin 2 \Omega \\
 &\quad - 0.02519 \sin 2 \odot \\
 &\quad + 0.00293 \sin (\odot + 81^\circ 57') \\
 &\quad - 0.00405 \sin 2 \zeta \\
 &\quad + 0.00135 \sin (\zeta - \Gamma') \\
 A' &= \tau - 0.34252 \sin \Omega \\
 &\quad + 0.00410 \sin 2 \Omega \\
 &\quad - 0.02519 \sin 2 \odot \\
 &\quad + 0.00293 \sin (\odot + 81^\circ 57') \\
 B &= -9.2240 \cos \Omega \\
 &\quad + 0.0895 \cos 2 \Omega \\
 &\quad - 0.5506 \cos 2 \odot \\
 &\quad - 0.0092 \cos (\odot + 281^\circ 13') \\
 &\quad - 0.0885 \cos 2 \zeta \\
 B' &= -9.2240 \cos \Omega \\
 &\quad + 0.0895 \cos 2 \Omega \\
 &\quad - 0.5506 \cos 2 \odot \\
 &\quad - 0.0092 \cos (\odot + 281^\circ 13') \\
 C &= -20.4451 \cos \omega \cos \odot \\
 D &= -20.4451 \sin \odot \\
 E &= -0.0449 \sin \Omega + 0.0014'' \sin 2 \Omega - 0.0032'' \sin 2 \odot
 \end{aligned}$$

BESSEL'S Star-Constants.

$$\begin{aligned}
 a &= 3.07272'' + 1.33681'' \sin a_0 \tan \delta_0 = \text{precession in right ascension} \\
 b &= \frac{1}{15} \cos a_0 \tan \delta_0 \\
 c &= \frac{1}{15} \cos a_0 \sec \delta_0 \\
 d &= \frac{1}{15} \sin a_0 \sec \delta_0 \\
 a' &= 20.0521'' \cos a_0 = \text{precession in declination} \\
 b' &= -\sin a_0 \\
 c' &= \tan \omega \cos \delta_0 - \sin a_0 \sin \delta_0 \\
 d' &= \cos a_0 \sin \delta_0
 \end{aligned}$$

Reduction to Apparent Position.

$$\begin{aligned}
 a &= a_0 + \tau \mu + Aa + Bb + Cc + Dd + \frac{1}{15} E & (\text{in time}) \\
 \delta &= \delta_0 + \tau \mu' + Aa' + Bb' + Cc' + Dd' & (\text{in arc})
 \end{aligned}$$

INDEPENDENT STAR-NUMBERS.

$$\begin{aligned}
 f &= 46.0908'' A + E \text{ (in arc)} = 3.07272'' A + \frac{1}{15} E & (\text{in time}) \\
 f' &= 46.0908'' A' + E \text{ (in arc)} = 3.07272'' A' + \frac{1}{15} E & (\text{in time}) \\
 g \sin G &= B & g' \sin G' &= B' & h \sin H &= C & i &= C \tan \omega \\
 g \cos G &= 20.0521'' A & g' \cos G' &= 20.0521'' A' & h \cos H &= D
 \end{aligned}$$

Reduction to Apparent Position.

$$\begin{aligned}
 a &= a_0 + f + \tau \mu + \frac{1}{15} g \sin (G + a_0) \tan \delta_0 + \frac{1}{15} h \sin (H + a_0) \sec \delta_0 \text{ (in time)} \\
 \delta &= \delta_0 + \tau \mu' + g \cos (G + a_0) + h \cos (H + a_0) \sin \delta_0 + i \cos \delta_0 \text{ (in arc)}
 \end{aligned}$$

NOTES.—(1) The quantities A', B', f', g' , and G' are to be used instead of A, B, f, g , and G whenever it is necessary to omit the short period terms, as, for example, in computing the ephemeris of a star at ten-day intervals.

(2) The independent star-numbers are more convenient, when only one or two apparent positions of a star are required, or when BESSEL'S star-constants are not known with sufficient accuracy. Otherwise, the Besselian star-numbers are more convenient.

(3) In using the star-constants of the *British Association Catalogue*, $a, b, c, d, a', b', c', d'$, with the star-numbers of this Ephemeris, the quantities to be formed are $Ac, Bd, Ca, Db, -Ac', -Bd', -Ca', -Db'$.

PRECESSION, OBLIQUITY, ETC., 1900.
(CONSTANTS OF STRUVE AND PETERS.)

FOR GREENWICH MEAN NOON.

Date.	In Longitude.		Nutation in R. A.	Obliquity. (Peters.)		The Sun's Aberration.
	Precession from 1900.0	Nutation.				
	"	"	"	"	"	"
Jan. 0	— 0.04	+ 17.45	+ 1.065	23 27 5.58	— 20.79	
10	+ 1.33	17.83	1.089	5.58	20.78	
20	2.71	18.11	1.107	5.63	20.77	
30	4.09	18.26	1.117	5.72	20.75	
Feb. 9	5.46	18.24	1.116	5.81	20.70	
19	+ 6.84	+ 18.08	+ 1.106	23 27 5.90	— 20.66	
Mar. 1	8.21	17.76	1.086	5.95	20.61	
11	9.59	17.36	1.061	5.96	20.56	
21	10.97	16.90	1.033	5.89	20.50	
31	12.34	16.43	1.004	5.76	20.44	
Apr. 10	+ 13.72	+ 16.00	+ 0.978	23 27 5.58	— 20.38	
20	15.09	15.68	0.959	5.34	20.33	
30	16.47	15.48	0.946	5.08	20.27	
May 10	17.85	15.40	0.943	4.79	20.23	
20	19.22	15.48	0.947	4.52	20.18	
30	+ 20.60	+ 15.66	+ 0.958	23 27 4.28	— 20.16	
June 9	21.98	15.94	0.976	4.09	20.13	
19	23.35	16.28	0.996	3.95	20.11	
29	24.73	16.63	1.017	3.86	20.10	
July 9	26.10	16.93	1.035	3.84	20.10	
19	+ 27.48	+ 17.16	+ 1.050	23 27 3.88	— 20.11	
29	28.86	17.29	1.057	3.94	20.13	
Aug. 8	30.23	17.27	1.056	4.03	20.16	
18	31.61	17.11	1.046	4.12	20.21	
28	32.99	16.83	1.030	4.19	20.25	
Sept. 7	+ 34.36	+ 16.44	+ 1.005	23 27 4.21	— 20.30	
17	35.74	15.97	0.976	4.18	20.35	
27	37.11	15.47	0.946	4.10	20.41	
Oct. 7	38.49	14.99	0.916	3.95	20.47	
17	39.87	14.57	0.892	3.75	20.53	
27	+ 41.24	+ 14.28	+ 0.874	23 27 3.50	— 20.59	
Nov. 6	42.62	14.13	0.863	3.22	20.64	
16	43.99	14.13	0.864	2.94	20.69	
26	45.37	14.28	0.873	2.68	20.72	
Dec. 6	46.75	14.56	0.890	2.45	20.75	
16	+ 48.12	+ 14.93	+ 0.912	23 27 2.29	— 20.77	
26	49.50	15.32	0.936	2.20	20.79	
36	+ 50.88	+ 15.70	+ 0.959	23 27 2.18	— 20.79	
Precession for 1900 (Struve) 50.2638 log 1.70126				Mean Obliquity 1900.0		
Precession in a Solar Day 0.1376 log 9.13867				PETERS 23 27 07.76		
Precession in a Sidereal Day 0.1372 log 9.13748				HANSEN 23 27 08.02		
				NEWCOMB 23 27 08.26		

BESSELIAN STAR-NUMBERS, 1900.

597

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Jan. 0	+9.5417	+0.3542	-0.5286	+1.3034	Feb. 15	+9.6895	+0.2405	-1.1972	+1.0455
1	9.5486	0.3501	0.5688	1.3019	16	9.6897	0.2355	1.2021	1.0334
2	9.5543	0.3435	0.6054	1.3003	17	9.6899	0.2352	1.2067	1.0209
3	9.5591	0.3354	0.6391	1.2985	h 18	9.6905	0.2392	1.2112	1.0078
h (7.0) 4	9.5628	0.3277	0.6702	1.2966	(10.0) 19	9.6915	0.2462	1.2155	0.9943
5	+9.5658	+0.3219	-0.6991	+1.2946	20	+9.6932	+0.2542	-1.2196	+0.9801
6	9.5681	0.3192	0.7261	1.2923	21	9.6957	0.2615	1.2235	0.9654
7	9.5704	0.3203	0.7514	1.2900	22	9.6991	0.2654	1.2273	0.9500
8	9.5730	0.3247	0.7752	1.2875	23	9.7026	0.2651	1.2309	0.9339
9	9.5762	0.3313	0.7976	1.2848	24	9.7061	0.2610	1.2344	0.9170
10	+9.5802	+0.3386	-0.8187	+1.2820	25	+9.7092	+0.2533	-1.2377	+0.8993
11	9.5851	0.3447	0.8388	1.2790	26	9.7117	0.2425	1.2408	0.8808
12	9.5904	0.3485	0.8578	1.2759	27	9.7135	0.2312	1.2438	0.8613
13	9.5961	0.3488	0.8759	1.2726	28	9.7147	0.2212	1.2466	0.8407
14	9.6014	0.3455	0.8931	1.2691	Mar. 1	9.7152	0.2145	1.2492	0.8191
15	+9.6063	+0.3389	-0.9096	+1.2655	2	+9.7157	+0.2125	-1.2518	+0.7961
16	9.6103	0.3299	0.9253	1.2617	3	9.7161	0.2155	1.2541	0.7717
17	9.6133	0.3201	0.9403	1.2577	4	9.7168	0.2226	1.2564	0.7457
18	9.6153	0.3111	0.9547	1.2536	5	9.7181	0.2322	1.2584	0.7180
h 19	9.6168	0.3046	0.9685	1.2493	h (11.0) 6	9.7201	0.2419	1.2604	0.6882
(8.0) 20	+9.6179	+0.3018	-0.9817	+1.2448	7	+9.7226	+0.2499	-1.2622	+0.6562
21	9.6191	0.3028	0.9944	1.2401	8	9.7254	0.2545	1.2638	0.6215
22	9.6208	0.3071	1.0066	1.2353	9	9.7284	0.2549	1.2653	0.5836
23	9.6232	0.3132	1.0184	1.2302	10	9.7311	0.2512	1.2667	0.5419
24	9.6266	0.3195	1.0297	1.2249	11	9.7334	0.2440	1.2680	0.4957
25	+9.6308	+0.3242	-1.0406	+1.2195	12	+9.7350	+0.2348	-1.2691	+0.4440
26	9.6354	0.3260	1.0510	1.2138	13	9.7358	0.2255	1.2700	0.3851
27	9.6403	0.3242	1.0611	1.2079	14	9.7361	0.2186	1.2709	0.3168
28	9.6451	0.3185	1.0708	1.2018	15	9.7359	0.2156	1.2716	0.2355
29	9.6493	0.3096	1.0802	1.1955	16	9.7357	0.2175	1.2721	0.1354
30	+9.6527	+0.2988	-1.0893	+1.1890	17	+9.7356	+0.2242	-1.2726	+0.0052
31	9.6553	0.2876	1.0980	1.1822	18	9.7361	0.2342	1.2729	9.8176
Feb. 1	9.6571	0.2781	1.1064	1.1751	19	9.7372	0.2462	1.2731	+9.4814
2	9.6585	0.2715	1.1145	1.1679	20	9.7390	0.2583	1.2731	-8.7076
3	9.6596	0.2695	1.1224	1.1603	h (12.0) 21	9.7414	0.2668	1.2730	9.6075
h (9.0) 4	+9.6609	+0.2714	-1.1299	+1.1525	22	+9.7442	+0.2716	-1.2728	-9.8797
5	9.6626	0.2765	1.1372	1.1444	23	9.7471	0.2723	1.2725	0.0461
6	9.6649	0.2830	1.1442	1.1360	24	9.7498	0.2692	1.2720	0.1658
7	9.6680	0.2892	1.1510	1.1274	25	9.7521	0.2643	1.2714	0.2593
8	9.6716	0.2932	1.1576	1.1184	26	9.7538	0.2575	1.2707	0.3361
9	+9.6755	+0.2938	-1.1639	+1.1091	27	+9.7550	+0.2515	-1.2698	-0.4011
10	9.6793	0.2903	1.1700	1.0994	28	9.7554	0.2480	1.2688	0.4577
11	9.6828	0.2830	1.1759	1.0894	29	9.7557	0.2492	1.2677	0.5074
12	9.6856	0.2726	1.1815	1.0790	30	9.7559	0.2547	1.2664	0.5519
13	*9.6876	0.2608	1.1869	1.0682	31	9.7564	0.2642	1.2650	0.5922
14	+9.6889	+0.2494	-1.1922	+1.0571	Apr. 1	+9.7574	+0.2763	-1.2635	-0.6289
15	+9.6895	+0.2405	-1.1972	+1.0455	2	+9.7589	+0.2891	-1.2619	-0.6626

$$E = +0.04'' = +0.003''$$

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Apr. 1	+ 9.7574	+ 0.2763	- 1.2635	- 0.6289	May 17	+ 9.8349	+ 0.4889	- 1.0117	- 1.2331
2	9.7589	0.2891	1.2619	0.6626	18	9.8378	0.4886	1.0003	1.2378
3	9.7611	0.3005	1.2601	0.6936	19	9.8402	0.4867	0.9886	1.2422
4	9.7636	0.3096	1.2581	0.7225	20	9.8421	0.4845	0.9763	1.2467
5	9.7663	0.3149	1.2561	0.7495	21	9.8436	0.4830	0.9636	1.2509
^h (13.0) 6	+ 9.7689	+ 0.3164	- 1.2540	- 0.7748	^h (16.0) 22	+ 9.8447	+ 0.4834	- 0.9504	- 1.2548
7	9.7713	0.3147	1.2517	0.7986	23	9.8456	0.4863	0.9367	1.2588
8	9.7730	0.3108	1.2491	0.8210	24	9.8467	0.4916	0.9224	1.2624
9	9.7741	0.3064	1.2464	0.8421	25	9.8480	0.4989	0.9075	1.2660
10	9.7747	0.3034	1.2437	0.8621	26	9.8497	0.5072	0.8919	1.2694
11	+ 9.7748	+ 0.3034	- 1.2408	- 0.8811	27	+ 9.8520	+ 0.5152	- 0.8756	- 1.2726
12	9.7747	0.3071	1.2377	0.8992	28	9.8546	0.5225	0.8586	1.2757
13	9.7747	0.3148	1.2345	0.9164	29	9.8575	0.5276	0.8408	1.2787
14	9.7751	0.3256	1.2312	0.9329	30	9.8606	0.5303	0.8220	1.2815
15	9.7762	0.3380	1.2277	0.9486	31	9.8635	0.5306	0.8024	1.2842
16	+ 9.7778	+ 0.3503	- 1.2240	- 0.9636	June 1	+ 9.8660	+ 0.5291	- 0.7816	- 1.2867
17	9.7801	0.3611	1.2202	0.9780	2	9.8680	0.5264	0.7597	1.2892
18	9.7828	0.3690	1.2163	0.9918	3	9.8695	0.5238	0.7366	1.2914
19	9.7858	0.3736	1.2121	1.0051	4	9.8705	0.5222	0.7119	1.2936
20	9.7886	0.3747	1.2078	1.0178	5	9.8713	0.5225	0.6856	1.2956
^h (14.0) 21	+ 9.7911	+ 0.3737	- 1.2034	- 1.0300	^h (17.0) 6	+ 9.8720	+ 0.5251	- 0.6576	- 1.2974
22	9.7931	0.3710	1.1988	1.0418	7	9.8728	0.5296	0.6276	1.2992
23	9.7946	0.3684	1.1940	1.0532	8	9.8741	0.5362	0.5952	1.3008
24	9.7956	0.3674	1.1889	1.0641	9	9.8758	0.5432	0.5598	1.3023
25	9.7963	0.3693	1.1839	1.0746	10	9.8780	0.5497	0.5214	1.3037
26	+ 9.7968	+ 0.3745	- 1.1784	- 1.0848	11	+ 9.8806	+ 0.5548	- 0.4791	- 1.3049
27	9.7976	0.3829	1.1729	1.0945	12	9.8836	0.5579	0.4322	1.3060
28	9.7988	0.3935	1.1672	1.1040	13	9.8866	0.5588	0.3793	1.3070
29	9.8003	0.4050	1.1612	1.1131	14	9.8894	0.5577	0.3191	1.3079
30	9.8024	0.4157	1.1550	1.1219	15	9.8919	0.5548	0.2489	1.3086
May 1	+ 9.8050	+ 0.4250	- 1.1487	- 1.1304	16	+ 9.8940	+ 0.5512	- 0.1652	- 1.3093
2	9.8080	0.4314	1.1421	1.1386	17	9.8956	0.5480	0.0610	1.3098
3	9.8109	0.4348	1.1353	1.1466	18	9.8969	0.5460	0.9238	1.3101
4	9.8136	0.4354	1.1283	1.1542	19	9.8980	0.5460	0.7218	1.3104
5	9.8158	0.4341	1.1210	1.1616	20	9.8990	0.5482	- 0.9304	1.3106
^h (15.0) 6	+ 9.8174	+ 0.4319	- 1.1135	- 1.1688	^h (18.0) 21	+ 9.9002	+ 0.5524	+ 8.9912	- 1.3106
7	9.8185	0.4302	1.1057	1.1757	22	9.9018	0.5578	9.6128	1.3105
8	9.8192	0.4303	1.0977	1.1824	23	9.9038	0.5634	9.8585	1.3103
9	9.8196	0.4329	1.0894	1.1888	24	9.9062	0.5684	0.0145	1.3099
10	9.8200	0.4386	1.0808	1.1951	25	9.9089	0.5718	0.1287	1.3095
11	+ 9.8207	+ 0.4467	- 1.0720	- 1.2011	26	+ 9.9117	+ 0.5731	+ 0.2191	- 1.3089
12	9.8219	0.4563	1.0627	1.2069	27	9.9144	0.5722	0.2938	1.3082
13	9.8236	0.4663	1.0532	1.2125	28	9.9168	0.5695	0.3574	1.3074
14	9.8260	0.4754	1.0434	1.2180	29	9.9188	0.5655	0.4128	1.3064
15	9.8288	0.4825	1.0332	1.2232	30	9.9204	0.5610	0.4616	1.3053
16	+ 9.8319	+ 0.4870	- 1.0226	- 1.2282	July 1	+ 9.9214	+ 0.5571	+ 0.5056	- 1.3042
17	+ 9.8349	+ 0.4889	- 1.0117	- 1.2331	2	+ 9.9222	+ 0.5549	+ 0.5453	- 1.3028

E = + 0.04" = + 0.003"

BESSELIAN STAR-NUMBERS, 1900.

599

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
July 1	+9.9214	+0.5571	+0.5056	-1.3042	Aug. 16	+9.9834	+0.5260	+1.1801	-1.0818
2	9.9222	0.5549	0.5453	1.3028	17	9.9847	0.5298	1.1853	1.0716
3	9.9228	0.5547	0.5816	1.3014	18	9.9863	0.5327	1.1904	1.0610
4	9.9235	0.5565	0.6150	1.2998	19	9.9881	0.5339	1.1953	1.0501
5	9.9244	0.5602	0.6459	1.2981	20	9.9899	0.5327	1.2000	1.0388
h (19.0) 6	+9.9258	+0.5647	+0.6747	-1.2963	h (22.0) 21	+9.9916	+0.5293	+1.2045	-1.0270
7	9.9276	0.5692	0.7015	1.2944	22	9.9930	0.5242	1.2089	1.0148
8	9.9298	0.5728	0.7266	1.2923	23	9.9940	0.5179	1.2131	1.0021
9	9.9323	0.5747	0.7503	1.2901	24	9.9946	0.5117	1.2171	0.9889
10	9.9349	0.5744	0.7726	1.2878	25	9.9949	0.5067	1.2210	0.9751
11	+9.9374	+0.5719	+0.7938	-1.2853	26	+9.9949	+0.5036	+1.2248	-0.9608
12	9.9397	0.5678	0.8138	1.2827	27	9.9949	0.5033	1.2283	0.9458
13	9.9415	0.5626	0.8328	1.2799	28	9.9950	0.5053	1.2318	0.9301
14	9.9430	0.5574	0.8509	1.2770	29	9.9953	0.5091	1.2351	0.9138
15	9.9441	0.5532	0.8683	1.2740	30	9.9960	0.5137	1.2382	0.8966
16	+9.9450	+0.5507	+0.8847	-1.2708	31	+9.9970	+0.5181	+1.2412	-0.8786
17	9.9458	0.5504	0.9005	1.2675	Sept. 1	9.9984	0.5211	1.2440	0.8597
18	9.9466	0.5521	0.9156	1.2641	2	0.0001	0.5222	1.2467	0.8398
19	9.9478	0.5555	0.9301	1.2605	3	0.0017	0.5208	1.2493	0.8188
20	9.9493	0.5594	0.9440	1.2567	4	0.0031	0.5174	1.2517	0.7967
h (20.0) 21	+9.9513	+0.5631	+0.9574	-1.2528	h (23.0) 5	+0.0044	+0.5123	+1.2540	-0.7735
22	9.9533	0.5656	0.9703	1.2487	6	0.0053	0.5066	1.2562	0.7489
23	9.9556	0.5660	0.9827	1.2445	7	0.0059	0.5014	1.2582	0.7225
24	9.9579	0.5643	0.9946	1.2401	8	0.0062	0.4978	1.2601	0.6939
25	9.9600	0.5606	1.0061	1.2355	9	0.0063	0.4966	1.2619	0.6633
26	+9.9617	+0.5553	+1.0171	-1.2308	10	+0.0064	+0.4979	+1.2635	-0.6300
27	9.9630	0.5493	1.0278	1.2258	11	0.0068	0.5016	1.2650	0.5939
28	9.9638	0.5436	1.0381	1.2207	12	0.0073	0.5068	1.2664	0.5544
29	9.9644	0.5392	1.0481	1.2155	13	0.0082	0.5124	1.2676	0.5107
30	9.9647	0.5369	1.0577	1.2100	14	0.0095	0.5174	1.2688	0.4620
31	+9.9650	+0.5368	+1.0670	-1.2043	15	+0.0109	+0.5209	+1.2697	-0.4069
Aug. 1	9.9655	0.5388	1.0760	1.1985	16	0.0124	0.5221	1.2706	0.3436
2	9.9663	0.5422	1.0846	1.1924	17	0.0139	0.5210	1.2713	0.2693
3	9.9675	0.5459	1.0930	1.1861	18	0.0151	0.5180	1.2719	0.1794
4	9.9691	0.5490	1.1011	1.1796	19	0.0161	0.5137	1.2724	0.0657
h (21.0) 5	+9.9710	+0.5506	+1.1090	-1.1729	h (0.0) 20	+0.0166	+0.5091	+1.2728	-0.9034
6	9.9731	0.5501	1.1166	1.1659	21	0.0168	0.5055	1.2730	9.6547
7	9.9751	0.5473	1.1239	1.1588	22	0.0167	0.5038	1.2731	-9.0090
8	9.9770	0.5425	1.1310	1.1513	23	0.0166	0.5045	1.2731	+9.3934
9	9.9786	0.5365	1.1379	1.1436	24	0.0165	0.5079	1.2729	9.7762
10	+9.9796	+0.5301	+1.1445	-1.1356	25	+0.0166	+0.5132	+1.2727	+9.9763
11	9.9804	0.5244	1.1510	1.1274	26	0.0170	0.5197	1.2722	0.1122
12	9.9810	0.5205	1.1572	1.1189	27	0.0178	0.5262	1.2717	0.2166
13	9.9814	0.5188	1.1632	1.1101	28	0.0189	0.5318	1.2710	0.3000
14	9.9818	0.5195	1.1690	1.1009	29	0.0203	0.5355	1.2702	0.3696
15	+9.9825	+0.5221	+1.1747	-1.0915	30	+0.0218	+0.5370	+1.2693	+0.4302
16	+9.9834	+0.5260	+1.1801	-1.0818	Oct. 1	+0.0232	+0.5364	+1.2683	+0.4829

$$E = +0.04'' = +0.003''$$

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Oct. 1	+ 0.0232	+ 0.5364	+ 1.2683	+ 0.4829	Nov. 16	+ 0.0638	+ 0.6384	+ 1.0379	+ 1.2209
2	0.0245	0.5340	1.2671	0.5299	17	0.0642	0.6414	1.0270	1.2262
3	0.0254	0.5308	1.2658	0.5721	18	0.0646	0.6462	1.0158	1.2314
4	0.0260	0.5278	1.2643	0.6105	h 19	0.0653	0.6519	1.0039	1.2364
5	0.0264	0.5260	1.2627	0.6457	(4.0) 20	0.0663	0.6582	0.9917	1.2412
h (1.0) 6	+ 0.0265	+ 0.5262	+ 1.2610	+ 0.6782	21	+ 0.0676	+ 0.6641	+ 0.9790	+ 1.2458
7	0.0266	0.5288	1.2591	0.7083	22	0.0692	0.6690	0.9657	1.2502
8	0.0269	0.5338	1.2571	0.7363	23	0.0709	0.6722	0.9519	1.2545
9	0.0274	0.5403	1.2550	0.7625	24	0.0728	0.6738	0.9374	1.2585
10	0.0282	0.5476	1.2527	0.7872	25	0.0745	0.6737	0.9224	1.2624
11	+ 0.0293	+ 0.5546	+ 1.2503	+ 0.8104	26	+ 0.0759	+ 0.6725	+ 0.9066	+ 1.2662
12	0.0307	0.5602	1.2477	0.8323	27	0.0772	0.6709	0.8901	1.2698
13	0.0322	0.5640	1.2450	0.8530	28	0.0781	0.6696	0.8728	1.2732
14	0.0337	0.5656	1.2421	0.8727	29	0.0789	0.6693	0.8547	1.2764
15	0.0351	0.5653	1.2391	0.8914	30	0.0795	0.6705	0.8356	1.2795
16	+ 0.0362	+ 0.5637	+ 1.2359	+ 0.9092	Dec. 1	+ 0.0802	+ 0.6733	+ 0.8155	+ 1.2824
17	0.0369	0.5615	1.2326	0.9262	2	0.0810	0.6776	0.7942	1.2852
18	0.0374	0.5598	1.2291	0.9425	3	0.0821	0.6827	0.7717	1.2879
19	0.0375	0.5595	1.2254	0.9580	4	0.0834	0.6881	0.7478	1.2903
20	0.0375	0.5613	1.2216	0.9729	h 5	0.0850	0.6928	0.7224	1.2927
h (2.0) 21	+ 0.0375	+ 0.5653	+ 1.2176	+ 0.9872	(5.0) 6	+ 0.0868	+ 0.6963	+ 0.6953	+ 1.2949
22	0.0377	0.5712	1.2135	1.0009	7	0.0887	0.6983	0.6661	1.2969
23	0.0381	0.5783	1.2091	1.0141	8	0.0905	0.6986	0.6348	1.2988
24	0.0390	0.5857	1.2046	1.0268	9	0.0922	0.6975	0.6011	1.3005
25	0.0402	0.5924	1.1999	1.0389	10	0.0935	0.6955	0.5641	1.3021
26	+ 0.0416	+ 0.5977	+ 1.1950	+ 1.0507	11	+ 0.0946	+ 0.6932	+ 0.5235	+ 1.3036
27	0.0432	0.6011	1.1899	1.0619	12	0.0954	0.6915	0.4786	1.3049
28	0.0448	0.6025	1.1847	1.0728	13	0.0959	0.6910	0.4282	1.3061
29	0.0463	0.6023	1.1792	1.0833	14	0.0964	0.6920	0.3712	1.3071
30	0.0475	0.6010	1.1735	1.0934	15	0.0969	0.6945	0.3054	1.3081
31	+ 0.0484	+ 0.5995	+ 1.1676	+ 1.1032	16	+ 0.0976	+ 0.6981	+ 0.2275	+ 1.3088
Nov. 1	0.0490	0.5987	1.1615	1.1126	17	0.0986	0.7025	0.1323	1.3094
2	0.0495	0.5995	1.1552	1.1217	18	0.0999	0.7067	0.0101	1.3099
3	0.0499	0.6022	1.1486	1.1305	19	0.1014	0.7102	9.8391	1.3103
h 4	0.0503	0.6068	1.1418	1.1390	20	0.1032	0.7123	9.5528	1.3105
(3.0) 5	+ 0.0509	+ 0.6129	+ 1.1347	+ 1.1472	h (6.0) 21	+ 0.1049	+ 0.7129	+ 8.3729	+ 1.3106
6	0.0519	0.6199	1.1274	1.1551	22	0.1067	0.7119	- 9.4912	1.3105
7	0.0531	0.6268	1.1199	1.1628	23	0.1082	0.7097	9.8084	1.3103
8	0.0546	0.6328	1.1120	1.1702	24	0.1097	0.7068	9.9897	1.3100
9	0.0563	0.6372	1.1039	1.1773	25	0.1107	0.7039	0.1171	1.3095
10	+ 0.0581	+ 0.6398	+ 1.0954	+ 1.1842	26	+ 0.1116	+ 0.7018	- 0.2154	+ 1.3089
11	0.0598	0.6406	1.0867	1.1909	27	0.1123	0.7009	0.2954	1.3082
12	0.0612	0.6400	1.0776	1.1973	28	0.1129	0.7015	0.3628	1.3073
13	0.0623	0.6387	1.0682	1.2035	29	0.1137	0.7036	0.4210	1.3063
14	0.0631	0.6375	1.0585	1.2095	30	0.1146	0.7067	0.4722	1.3051
15	+ 0.0636	+ 0.6372	+ 1.0484	+ 1.2153	31	+ 0.1158	+ 0.7102	- 0.5179	+ 1.3038
16	+ 0.0638	+ 0.6384	+ 1.0379	+ 1.2209	32	+ 0.1173	+ 0.7134	- 0.5591	+ 1.3023

E = + 0.04" = + 0.003^a

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f	f'	G		H		Log g .	Log h .	i	Log i .	
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.					
	y	s	s	°	h m	°	h m			"		
Jan.	0	0.0011	+ 1.073	+ 1.073	17 57	1 11.8	350 28	23 21.9	+ 0.8655	+ 1.3095	- 1.47	- 0.1657
	1	0.0038	1.090	1.084	17 32	1 10.1	349 32	23 18.1	0.8714	1.3093	1.60	0.2060
	2	0.0066	1.104	1.094	17 4	1 8.3	348 36	23 14.4	0.8760	1.3090	1.75	0.2427
	3	0.0093	1.116	1.105	16 35	1 6.3	347 39	23 10.6	0.8797	1.3087	1.89	0.2764
	4	0.0120	1.126	1.116	16 11	1 4.7	346 42	23 6.8	0.8825	1.3084	2.03	0.3075
	5	0.0148	+ 1.134	+ 1.127	15 53	1 3.5	345 45	23 3.0	+ 0.8848	+ 1.3081	- 2.17	- 0.3364
	6	0.0175	1.141	1.138	15 41	1 2.7	344 49	22 59.3	0.8871	1.3078	2.31	0.3634
	7	0.0202	1.146	1.149	15 40	1 2.7	343 52	22 55.5	0.8890	1.3074	2.45	0.3887
	8	0.0230	1.152	1.159	15 43	1 2.9	342 55	22 51.7	0.8917	1.3071	2.59	0.4125
	9	0.0257	1.160	1.169	15 51	1 3.4	341 58	22 47.9	0.8948	1.3067	2.72	0.4349
h (7.0)	10	0.0285	+ 1.172	+ 1.180	15 57	1 3.8	341 1	22 44.1	+ 0.8995	+ 1.3063	- 2.86	- 0.4560
	11	0.0312	1.185	1.190	16 0	1 4.0	340 3	22 40.2	0.9044	1.3059	2.99	0.4761
	12	0.0339	1.200	1.200	15 57	1 3.8	339 6	22 36.4	0.9096	1.3054	3.13	0.4951
	13	0.0367	1.215	1.210	15 46	1 3.1	338 8	22 32.5	0.9149	1.3050	3.26	0.5132
	14	0.0394	1.230	1.221	15 28	1 1.9	337 11	22 28.7	0.9196	1.3045	3.39	0.5304
	15	0.0422	+ 1.244	+ 1.231	15 5	1 0.3	336 13	22 24.9	+ 0.9237	+ 1.3040	- 3.52	- 0.5469
	16	0.0449	1.255	1.241	14 39	0 58.6	335 15	22 21.0	0.9268	1.3035	3.65	0.5626
	17	0.0476	1.264	1.251	14 15	0 57.0	334 17	22 17.1	0.9290	1.3030	3.78	0.5776
	18	0.0504	1.270	1.261	13 54	0 55.6	333 19	22 13.3	0.9304	1.3025	3.91	0.5920
	19	0.0531	1.274	1.271	13 40	0 54.7	332 21	22 9.4	0.9314	1.3019	4.03	0.6058
h (8.0)	20	0.0558	+ 1.278	+ 1.281	13 33	0 54.2	331 23	22 5.5	+ 0.9323	+ 1.3014	- 4.16	- 0.6190
	21	0.0586	1.281	1.290	13 32	0 54.1	330 24	22 1.6	0.9335	1.3009	4.28	0.6317
	22	0.0613	1.286	1.300	13 37	0 54.5	329 26	21 57.7	0.9353	1.3003	4.40	0.6439
	23	0.0641	1.293	1.309	13 44	0 54.9	328 27	21 53.8	0.9380	1.2997	4.53	0.6557
	24	0.0668	1.304	1.319	13 49	0 55.3	327 28	21 49.9	0.9415	1.2991	4.65	0.6670
	25	0.0696	+ 1.316	+ 1.328	13 50	0 55.3	326 29	21 45.9	+ 0.9457	+ 1.2985	- 4.76	- 0.6779
	26	0.0723	1.330	1.337	13 45	0 55.0	325 30	21 42.0	0.9502	1.2978	4.88	0.6883
	27	0.0750	1.345	1.346	13 32	0 54.3	324 30	21 38.0	0.9547	1.2971	4.99	0.6984
	28	0.0777	1.360	1.355	13 14	0 52.9	323 31	21 34.1	0.9589	1.2966	5.11	0.7081
	29	0.0805	1.373	1.364	12 51	0 51.4	322 31	21 30.1	0.9624	1.2960	5.22	0.7175
Feb.	30	0.0832	+ 1.384	+ 1.373	12 27	0 49.8	321 31	21 26.1	+ 0.9652	+ 1.2953	- 5.33	- 0.7266
	31	0.0860	1.392	1.382	12 4	0 48.3	320 31	21 22.1	0.9672	1.2946	5.44	0.7353
	1	0.0887	1.398	1.391	11 46	0 47.1	319 31	21 18.1	0.9685	1.2940	5.54	0.7437
	2	0.0914	1.403	1.400	11 34	0 46.3	318 31	21 14.1	0.9695	1.2933	5.64	0.7518
	3	0.0942	1.406	1.408	11 29	0 45.9	317 30	21 10.0	0.9705	1.2927	5.75	0.7597
	4	0.0969	+ 1.410	+ 1.416	11 30	0 46.0	316 29	21 5.9	+ 0.9718	+ 1.2920	- 5.85	- 0.7672
	5	0.0996	1.416	1.424	11 35	0 46.3	315 29	21 1.9	0.9737	1.2914	5.95	0.7745
	6	0.1024	1.424	1.432	11 42	0 46.8	314 28	20 57.8	0.9762	1.2907	6.05	0.7815
	7	0.1051	1.434	1.440	11 47	0 47.1	313 26	20 53.7	0.9794	1.2900	6.14	0.7883
	8	0.1079	1.445	1.448	11 47	0 47.1	312 25	20 49.7	0.9830	1.2894	6.24	0.7949
h (9.0)	9	0.1106	+ 1.458	+ 1.455	11 42	0 46.8	311 24	20 45.6	+ 0.9868	+ 1.2887	- 6.33	- 0.8012
	10	0.1133	1.471	1.463	11 31	0 46.1	310 22	20 41.5	0.9903	1.2881	6.42	0.8073
	11	0.1161	1.483	1.471	11 14	0 44.9	309 20	20 37.3	0.9933	1.2874	6.50	0.8132
	12	0.1188	1.493	1.479	10 54	0 43.6	308 18	20 33.2	0.9956	1.2867	6.59	0.8188
	13	0.1216	1.500	1.486	10 34	0 42.3	307 16	20 29.1	0.9972	1.2861	6.67	0.8242
	14	0.1243	+ 1.504	+ 1.493	10 17	0 41.1	306 14	20 24.9	+ 0.9980	+ 1.2855	- 6.75	- 0.8295
	15	0.1270	+ 1.506	+ 1.501	10 3	0 40.2	305 11	20 20.7	+ 0.9983	+ 1.2849	- 6.83	- 0.8345

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f	f'	G		H		Log g .	Log h .	i	Log i .
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ' "	h m	° ' "	h m				
Feb.	15	0.1270	+ 1.506	+ 1.501	10 3	0 40.2	305 11	20 20.7	+ 0.9983	+ 1.2849	- 6.83	- 0.8345
	16	0.1298	1.508	1.509	9 56	0 39.7	304 9	20 16.6	0.9984	1.2842	6.91	0.8394
	17	0.1325	1.509	1.516	9 56	0 39.7	303 6	20 12.4	0.9986	1.2836	6.98	0.8440
h	18	0.1352	1.510	1.523	10 0	0 40.0	302 3	20 8.2	0.9993	1.2830	7.05	0.8485
(10.0)	19	0.1380	1.513	1.529	10 8	0 40.5	301 0	20 4.0	1.0005	1.2824	7.12	0.8528
	20	0.1407	+ 1.520	+ 1.536	10 17	0 41.1	299 57	19 59.8	+ 1.0024	+ 1.2819	- 7.19	- 0.8569
	21	0.1435	1.528	1.542	10 24	0 41.6	298 53	19 55.5	1.0050	1.2813	7.26	0.8608
	22	0.1462	1.540	1.549	10 24	0 41.6	297 50	19 51.3	1.0085	1.2807	7.32	0.8646
	23	0.1489	1.552	1.555	10 19	0 41.3	296 46	19 47.1	1.0119	1.2802	7.38	0.8682
	24	0.1517	1.565	1.562	10 9	0 40.6	295 43	19 42.9	1.0151	1.2797	7.44	0.8717
	25	0.1544	+ 1.576	+ 1.569	9 54	0 39.6	294 39	19 38.6	+ 1.0179	+ 1.2792	- 7.50	- 0.8750
	26	0.1571	1.585	1.575	9 37	0 38.5	293 35	19 34.3	1.0200	1.2787	7.55	0.8781
	27	0.1599	1.592	1.581	9 20	0 37.3	292 30	19 30.0	1.0215	1.2783	7.60	0.8811
	28	0.1626	1.596	1.587	9 6	0 36.4	291 26	19 25.7	1.0223	1.2778	7.65	0.8839
Mar.	1	0.1654	1.598	1.593	8 57	0 35.8	290 22	19 21.5	1.0227	1.2774	7.70	0.8865
	2	0.1681	+ 1.600	+ 1.599	8 54	0 35.6	289 18	19 17.2	+ 1.0231	+ 1.2769	- 7.74	- 0.8891
	3	0.1708	1.601	1.605	8 57	0 35.8	288 13	19 12.9	1.0236	1.2765	7.79	0.8914
	4	0.1736	1.604	1.612	9 5	0 36.3	287 9	19 8.6	1.0245	1.2761	7.83	0.8937
	5	0.1763	1.609	1.618	9 15	0 37.0	286 4	19 4.3	1.0260	1.2758	7.87	0.8957
h	6	0.1790	1.616	1.624	9 25	0 37.7	285 0	19 0.0	1.0281	1.2754	7.90	0.8977
(11.0)	7	0.1818	+ 1.626	+ 1.630	9 32	0 38.1	283 55	18 55.7	+ 1.0308	+ 1.2751	- 7.93	- 0.8995
	8	0.1845	1.636	1.635	9 34	0 38.3	282 50	18 51.3	1.0337	1.2748	7.96	0.9011
	9	0.1873	1.647	1.641	9 31	0 38.1	281 45	18 47.0	1.0366	1.2746	7.99	0.9026
	10	0.1900	1.657	1.646	9 23	0 37.5	280 40	18 42.7	1.0391	1.2743	8.02	0.9040
	11	0.1927	1.666	1.652	9 11	0 36.7	279 35	18 38.3	1.0410	1.2741	8.04	0.9053
	12	0.1954	+ 1.672	+ 1.658	8 57	0 35.8	278 30	18 34.0	+ 1.0425	+ 1.2739	- 8.06	- 0.9064
	13	0.1982	1.675	1.663	8 45	0 35.0	277 25	18 29.7	1.0431	1.2737	8.08	0.9073
	14	0.2010	1.676	1.669	8 37	0 34.5	276 20	18 25.3	1.0432	1.2735	8.09	0.9082
	15	0.2037	1.676	1.675	8 33	0 34.2	275 15	18 21.0	1.0430	1.2734	8.11	0.9089
	16	0.2064	1.675	1.680	8 36	0 34.4	274 10	18 16.7	1.0427	1.2733	8.12	0.9094
	17	0.2092	+ 1.675	+ 1.686	8 44	0 34.9	273 5	18 12.3	+ 1.0428	+ 1.2732	- 8.13	- 0.9099
	18	0.2119	1.676	1.691	8 55	0 35.7	272 0	18 8.0	1.0435	1.2732	8.13	0.9102
	19	0.2146	1.682	1.697	9 9	0 36.6	270 56	18 3.7	1.0449	1.2731	8.14	0.9104
	20	0.2174	1.688	1.703	9 22	0 37.5	269 51	17 59.4	1.0460	1.2731	8.14	0.9104
h	21	0.2201	1.697	1.708	9 30	0 38.0	268 46	17 55.1	1.0495	1.2731	8.13	0.9103
(12.0)	22	0.2229	+ 1.708	+ 1.713	9 32	0 38.1	267 41	17 50.7	+ 1.0524	+ 1.2732	- 8.13	- 0.9101
	23	0.2256	1.719	1.718	9 29	0 37.9	266 36	17 46.4	1.0553	1.2732	8.12	0.9098
	24	0.2283	1.730	1.724	9 22	0 37.5	265 31	17 42.1	1.0578	1.2733	8.11	0.9093
	25	0.2311	1.739	1.730	9 13	0 36.9	264 27	17 37.8	1.0599	1.2734	8.10	0.9087
	26	0.2338	1.746	1.735	9 2	0 36.1	263 22	17 33.5	1.0614	1.2735	8.09	0.9080
	27	0.2365	+ 1.751	+ 1.741	8 53	0 35.5	262 18	17 29.2	+ 1.0624	+ 1.2737	- 8.07	- 0.9071
	28	0.2393	1.753	1.747	8 49	0 35.3	261 13	17 24.9	1.0627	1.2739	8.06	0.9061
	29	0.2420	1.754	1.753	8 50	0 35.3	260 9	17 20.6	1.0630	1.2741	8.04	0.9050
	30	0.2448	1.755	1.758	8 56	0 35.7	259 5	17 16.3	1.0634	1.2744	8.01	0.9037
	31	0.2475	1.757	1.764	9 7	0 36.5	258 1	17 12.1	1.0641	1.2747	7.99	0.9023
Apr.	1	0.2502	+ 1.759	+ 1.769	9 21	0 37.4	256 57	17 7.8	+ 1.0653	+ 1.2750	- 7.96	- 0.9008
	2	0.2530	+ 1.767	+ 1.775	9 36	0 38.4	255 53	17 3.5	+ 1.0671	+ 1.2753	- 7.93	- 0.8992

INDEPENDENT STAR-NUMBERS, 1900.

603

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f		f'		G		H		Log g .	Log h .	i	Log i .
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
Apr.	y	s	s	°	h m	°	h m						
	1	0.2502	+ 1.759	+ 1.769	9 21	0 37.4	256 57	17 7.8	+ 1.0653	+ 1.2750	- 7.96	- 0.9008	
	2	0.2530	1.767	1.775	9 36	0 38.4	255 53	17 3.5	1.0671	1.2753	7.93	0.8992	
	3	0.2557	1.776	1.781	9 48	0 39.2	254 49	16 59.3	1.0696	1.2756	7.90	0.8974	
	4	0.2584	1.786	1.787	9 57	0 39.8	253 45	16 55.0	1.0723	1.2759	7.86	0.8954	
	h (13.0)	5	0.2612	1.797	1.792	10 0	0 40.0	252 42	16 50.8	1.0752	1.2763	7.82	0.8934
	6	0.2639	+ 1.808	+ 1.798	9 59	0 39.9	251 38	16 46.5	+ 1.0777	+ 1.2765	- 7.78	- 0.8913	
	7	0.2667	1.818	1.804	9 53	0 39.5	250 35	16 42.3	1.0800	1.2769	7.74	0.8890	
	8	0.2694	1.825	1.810	9 46	0 39.1	249 32	16 38.1	1.0815	1.2774	7.70	0.8864	
	9	0.2721	1.830	1.817	9 38	0 38.5	248 29	16 33.9	1.0825	1.2778	7.65	0.8837	
	10	0.2749	1.832	1.823	9 34	0 38.3	247 27	16 29.8	1.0829	1.2782	7.60	0.8810	
	11	0.2776	+ 1.832	+ 1.829	9 34	0 38.3	246 24	16 25.6	+ 1.0830	+ 1.2787	- 7.55	- 0.8781	
	12	0.2804	1.832	1.835	9 39	0 38.6	245 22	16 21.5	1.0831	1.2792	7.50	0.8750	
	13	0.2831	1.832	1.841	9 49	0 39.3	244 19	16 17.3	1.0833	1.2797	7.44	0.8718	
	14	0.2858	1.834	1.848	10 3	0 40.2	243 17	16 13.1	1.0840	1.2802	7.39	0.8685	
	15	0.2886	1.838	1.854	10 18	0 41.2	242 15	16 9.0	1.0854	1.2807	7.33	0.8650	
	16	0.2913	+ 1.845	+ 1.861	10 33	0 42.2	241 14	16 4.9	+ 1.0874	+ 1.2812	- 7.27	- 0.8613	
	17	0.2940	1.855	1.867	10 46	0 43.1	240 12	16 0.8	1.0900	1.2818	7.20	0.8575	
	18	0.2968	1.867	1.874	10 53	0 43.5	239 11	15 56.7	1.0929	1.2823	7.14	0.8536	
	19	0.2995	1.880	1.881	10 56	0 43.7	238 10	15 52.7	1.0959	1.2829	7.07	0.8494	
	h (14.0)	20	0.3023	1.892	1.888	10 53	0 43.5	237 9	15 48.6	1.0987	1.2835	7.00	0.8451
	21	0.3050	+ 1.903	+ 1.895	10 48	0 43.2	236 8	15 44.5	+ 1.1011	+ 1.2841	- 6.93	- 0.8407	
	22	0.3077	1.911	1.901	10 41	0 42.7	235 8	15 40.5	1.1029	1.2847	6.86	0.8361	
	23	0.3105	1.918	1.908	10 35	0 42.3	234 8	15 36.5	1.1042	1.2853	6.78	0.8313	
	24	0.3132	1.922	1.915	10 32	0 42.1	233 8	15 32.5	1.1051	1.2859	6.70	0.8262	
	25	0.3159	1.925	1.922	10 34	0 42.3	232 8	15 28.5	1.1059	1.2865	6.62	0.8212	
	26	0.3187	+ 1.928	+ 1.930	10 41	0 42.7	231 8	15 24.5	+ 1.1066	+ 1.2871	- 6.54	- 0.8157	
	27	0.3214	1.931	1.937	10 53	0 43.5	230 8	15 20.5	1.1076	1.2877	6.46	0.8102	
	28	0.3242	1.936	1.945	11 6	0 44.4	229 9	15 16.6	1.1091	1.2884	6.37	0.8045	
	29	0.3269	1.943	1.952	11 21	0 45.4	228 10	15 12.7	1.1111	1.2890	6.29	0.7985	
	30	0.3296	1.956	1.960	11 33	0 46.2	227 11	15 8.7	1.1142	1.2896	6.20	0.7923	
May	1	0.3324	+ 1.968	+ 1.967	11 43	0 46.9	226 12	15 4.8	+ 1.1171	+ 1.2903	- 6.11	- 0.7860	
	2	0.3351	1.978	1.975	11 50	0 47.3	225 14	15 0.9	1.1195	1.2909	6.02	0.7794	
	3	0.3378	1.991	1.983	11 51	0 47.4	224 16	14 57.1	1.1224	1.2915	5.92	0.7726	
	4	0.3406	2.004	1.992	11 47	0 47.1	223 18	14 53.2	1.1250	1.2922	5.83	0.7656	
	5	0.3433	2.014	1.999	11 42	0 46.8	222 19	14 49.3	1.1271	1.2928	5.73	0.7583	
	h (15.0)	6	0.3461	+ 2.021	+ 2.007	11 36	0 46.4	221 21	+ 1.1286	+ 1.2934	- 5.63	- 0.7508	
	7	0.3488	2.026	2.015	11 32	0 46.1	220 24	14 41.6	1.1295	1.2941	5.53	0.7430	
	8	0.3515	2.029	2.023	11 31	0 46.1	219 27	14 37.8	1.1302	1.2947	5.43	0.7350	
	9	0.3543	2.031	2.031	11 34	0 46.3	218 30	14 34.0	1.1307	1.2953	5.33	0.7265	
	10	0.3570	2.033	2.040	11 42	0 46.8	217 33	14 30.2	1.1313	1.2959	5.22	0.7181	
	11	0.3598	+ 2.037	+ 2.049	11 54	0 47.6	216 36	14 26.4	+ 1.1323	+ 1.2965	- 5.12	- 0.7093	
	12	0.3625	2.042	2.057	12 8	0 48.5	215 39	14 22.6	1.1339	1.2971	5.01	0.7000	
	13	0.3652	2.050	2.066	12 21	0 49.4	214 43	14 18.9	1.1360	1.2977	4.90	0.6905	
	14	0.3680	2.061	2.074	12 32	0 50.1	213 47	14 15.1	1.1388	1.2983	4.79	0.6807	
	15	0.3707	2.075	2.083	12 40	0 50.7	212 51	14 11.4	1.1418	1.2989	4.68	0.6705	
	16	0.3734	+ 2.089	+ 2.092	12 42	0 50.8	211 55	14 7.7	+ 1.1448	+ 1.2994	- 4.57	- 0.6599	
	17	0.3762	+ 2.104	+ 2.102	12 40	0 50.7	210 59	14 3.9	+ 1.1478	+ 1.3000	- 4.46	- 0.6490	

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f		f'		G		H		Log g .	Log h .	i	Log i .
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
		y	s	s	°	h m	°	h m					
May	17	0.3762	+ 2.104	+ 2.102	12 40	0 50.7	210 59	14 3.9	+ 1.1478	+ 1.3000	- 4.46	- 0.6490	
	18	0.3790	2.118	2.111	12 35	0 50.3	210 3	14 0.2	1.1506	1.3006	4.34	0.6376	
	19	0.3817	2.129	2.120	12 28	0 49.9	209 8	13 56.5	1.1527	1.3011	4.23	0.6259	
	20	0.3844	2.139	2.129	12 21	0 49.4	208 13	13 52.9	1.1544	1.3016	4.11	0.6136	
	21	0.3871	2.146	2.138	12 16	0 49.1	207 18	13 49.2	1.1558	1.3022	3.99	0.6009	
	h (16.0)	22	0.3899	+ 2.152	+ 2.148	12 15	0 49.0	206 23	13 45.5	+ 1.1568	+ 1.3027	- 3.87	- 0.5877
		23	0.3926	2.157	2.158	12 18	0 49.2	205 28	13 41.9	1.1579	1.3032	3.75	0.5740
		24	0.3953	2.162	2.167	12 25	0 49.7	204 34	13 38.3	1.1591	1.3036	3.63	0.5597
		25	0.3981	2.168	2.176	12 35	0 50.3	203 39	13 34.6	1.1607	1.3041	3.50	0.5448
		26	0.4008	2.177	2.186	12 46	0 51.1	202 45	13 31.0	1.1628	1.3045	3.38	0.5292
		27	0.4036	+ 2.188	+ 2.196	12 56	0 51.7	201 51	13 27.4	+ 1.1653	+ 1.3050	- 3.26	- 0.5129
		28	0.4063	2.202	2.206	13 4	0 52.3	200 56	13 23.7	1.1682	1.3054	3.13	0.4959
		29	0.4090	2.216	2.215	13 8	0 52.5	200 2	13 20.1	1.1712	1.3058	3.01	0.4781
		30	0.4118	2.232	2.225	13 7	0 52.5	199 9	13 16.6	1.1742	1.3062	2.88	0.4593
		31	0.4145	2.247	2.236	13 3	0 52.2	198 15	13 13.0	1.1770	1.3066	2.75	0.4397
June	1	0.4172	+ 2.260	+ 2.246	12 56	0 51.7	197 21	13 9.4	+ 1.1793	+ 1.3070	- 2.62	- 0.4189	
	2	0.4200	2.270	2.255	12 48	0 51.2	196 28	13 5.9	1.1811	1.3073	2.49	0.3970	
	3	0.4227	2.278	2.265	12 41	0 50.7	195 34	13 2.3	1.1824	1.3077	2.36	0.3739	
	4	0.4255	2.283	2.275	12 36	0 50.4	194 41	12 58.7	1.1833	1.3080	2.23	0.3492	
	5	0.4282	2.288	2.286	12 36	0 50.4	193 48	12 55.2	1.1840	1.3083	2.10	0.3229	
	h (17.0)	6	0.4309	+ 2.292	+ 2.297	12 39	0 50.6	192 54	12 51.6	+ 1.1849	+ 1.3086	- 1.97	- 0.2949
		7	0.4337	2.296	2.307	12 45	0 51.0	192 1	12 48.1	1.1858	1.3088	1.84	0.2649
		8	0.4364	2.302	2.317	12 54	0 51.6	191 8	12 44.5	1.1873	1.3090	1.71	0.2325
		9	0.4391	2.311	2.327	13 3	0 52.2	190 15	12 41.0	1.1893	1.3093	1.57	0.1971
		10	0.4419	2.323	2.337	13 11	0 52.7	189 22	12 37.5	1.1917	1.3095	1.44	0.1587
		11	0.4446	+ 2.337	+ 2.348	13 15	0 53.0	188 30	12 34.0	+ 1.1945	+ 1.3097	- 1.31	- 0.1164
		12	0.4474	2.353	2.358	13 15	0 53.0	187 37	12 30.5	1.1974	1.3099	1.17	0.0695
		13	0.4501	2.369	2.368	13 12	0 52.8	186 44	12 26.9	1.2003	1.3100	1.04	0.0166
		14	0.4528	2.385	2.379	13 5	0 52.3	185 51	12 23.4	1.2030	1.3102	0.90	9.9564
		15	0.4556	2.399	2.390	12 55	0 51.7	184 59	12 19.9	1.2052	1.3103	0.77	9.8862
	16	0.4583	+ 2.411	+ 2.401	12 46	0 51.1	184 6	12 16.4	+ 1.2070	+ 1.3104	- 0.63	- 9.8025	
	17	0.4611	2.419	2.411	12 38	0 50.5	183 14	12 12.9	1.2084	1.3104	0.50	9.6983	
	18	0.4638	2.426	2.421	12 32	0 50.1	182 21	12 9.4	1.2095	1.3105	0.36	9.5611	
	19	0.4665	2.432	2.431	12 30	0 50.0	181 29	12 5.9	1.2105	1.3105	0.22	9.3591	
	20	0.4693	2.438	2.442	12 32	0 50.1	180 36	12 2.4	1.2116	1.3106	- 0.09	- 8.9677	
	h (18.0)	21	0.4720	+ 2.445	+ 2.453	12 37	0 50.5	179 43	11 58.9	+ 1.2130	+ 1.3106	+ 0.04	+ 8.6285
		22	0.4747	2.454	2.463	12 44	0 50.9	178 51	11 55.4	1.2148	1.3106	0.18	9.2501
		23	0.4775	2.465	2.473	12 50	0 51.3	177 58	11 51.9	1.2170	1.3105	0.31	9.4958
		24	0.4802	2.479	2.484	12 54	0 51.6	177 6	11 48.4	1.2195	1.3105	0.45	9.6518
		25	0.4830	2.494	2.495	12 55	0 51.7	176 13	11 44.9	1.2222	1.3104	0.58	9.7660
		26	0.4857	+ 2.510	+ 2.505	12 53	0 51.5	175 21	11 41.4	+ 1.2249	+ 1.3103	+ 0.72	+ 9.8564
		27	0.4884	2.526	2.516	12 47	0 51.1	174 28	11 37.9	1.2274	1.3102	0.85	9.9311
		28	0.4912	2.540	2.526	12 38	0 50.5	173 36	11 34.4	1.2296	1.3101	0.99	9.9947
		29	0.4939	2.552	2.537	12 28	0 49.9	172 43	11 30.9	1.2313	1.3099	1.12	0.0501
		30	0.4966	2.561	2.547	12 18	0 49.2	171 51	11 27.4	1.2326	1.3097	1.26	0.0990
July	1	0.4994	+ 2.567	+ 2.557	12 9	0 48.6	170 58	11 23.9	+ 1.2334	+ 1.3096	+ 1.39	+ 0.1429	
	2	0.5021	+ 2.572	+ 2.568	12 5	0 48.3	170 5	11 20.3	+ 1.2341	+ 1.3094	+ 1.52	+ 0.1826	

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f		f'		G		H		Log g .	Log h .	i	Log i .
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
		s	s	° ' "	h m	° ' "	h m						
July	1	0.4994	+ 2.567	+ 2.557	12 9	0 48.6	170 58	11 23.9	+ 1.2334	+ 1.3096	+ 1.39	+ 0.1429	
	2	0.5021	2.572	2.568	12 5	0 48.3	170 5	11 20.3	1.2341	1.3094	1.52	0.1826	
	3	0.5049	2.576	2.579	12 3	0 48.2	169 12	11 16.8	1.2347	1.3091	1.66	0.2189	
	4	0.5076	2.580	2.589	12 5	0 48.3	168 20	11 13.3	1.2354	1.3089	1.79	0.2523	
	h (19.0)	5	0.5103	2.585	2.599	12 10	0 48.7	167 27	11 9.8	1.2364	1.3086	1.92	0.2832
	6	0.5131	+ 2.593	+ 2.609	12 15	0 49.0	166 34	11 6.3	+ 1.2380	+ 1.3084	+ 2.05	+ 0.3120	
	7	0.5158	2.604	2.619	12 20	0 49.3	165 41	11 2.7	1.2399	1.3081	2.18	0.3388	
	8	0.5185	2.617	2.629	12 22	0 49.5	164 47	10 59.1	1.2422	1.3078	2.31	0.3639	
	9	0.5213	2.632	2.639	12 21	0 49.4	163 54	10 55.6	1.2446	1.3075	2.44	0.3876	
	10	0.5240	2.648	2.649	12 16	0 49.1	163 1	10 52.1	1.2471	1.3071	2.57	0.4099	
	11	0.5268	+ 2.664	+ 2.660	12 8	0 48.5	162 8	10 48.5	+ 1.2494	+ 1.3068	+ 2.70	+ 0.4311	
	12	0.5295	2.678	2.670	11 58	0 47.9	161 14	10 44.9	1.2513	1.3064	2.83	0.4511	
	13	0.5322	2.689	2.679	11 46	0 47.1	160 20	10 41.3	1.2529	1.3060	2.95	0.4701	
	14	0.5350	2.698	2.689	11 36	0 46.4	159 27	10 37.8	1.2541	1.3056	3.08	0.4882	
	15	0.5377	2.705	2.699	11 28	0 45.9	158 33	10 34.2	1.2550	1.3052	3.20	0.5056	
	16	0.5405	+ 2.710	+ 2.708	11 22	0 45.5	157 39	10 30.6	+ 1.2557	+ 1.3048	+ 3.33	+ 0.5220	
	17	0.5432	2.715	2.718	11 21	0 45.4	156 45	10 27.0	1.2565	1.3043	3.45	0.5378	
	18	0.5459	2.721	2.728	11 22	0 45.5	155 51	10 23.4	1.2574	1.3039	3.57	0.5529	
	19	0.5487	2.728	2.737	11 25	0 45.7	154 57	10 19.8	1.2586	1.3034	3.69	0.5674	
	20	0.5514	2.737	2.746	11 29	0 45.9	154 2	10 16.1	1.2602	1.3029	3.81	0.5813	
h (20.0)	21	0.5541	+ 2.749	+ 2.756	11 32	0 46.1	153 7	10 12.5	+ 1.2621	+ 1.3024	+ 3.93	+ 0.5947	
	22	0.5569	2.763	2.765	11 33	0 46.2	152 13	10 8.9	1.2643	1.3019	4.05	0.6076	
	23	0.5596	2.777	2.774	11 29	0 45.9	151 18	10 5.2	1.2666	1.3014	4.17	0.6200	
	24	0.5624	2.792	2.783	11 24	0 45.6	150 23	10 1.5	1.2687	1.3008	4.29	0.6319	
	25	0.5651	2.805	2.792	11 16	0 45.1	149 28	9 57.9	1.2706	1.3003	4.40	0.6434	
	26	0.5678	+ 2.816	+ 2.801	11 4	0 44.3	148 33	9 54.2	+ 1.2720	+ 1.2997	+ 4.51	+ 0.6544	
	27	0.5706	2.824	2.809	10 53	0 43.5	147 38	9 50.5	1.2730	1.2992	4.62	0.6651	
	28	0.5733	2.830	2.818	10 44	0 42.9	146 42	9 46.8	1.2737	1.2986	4.73	0.6754	
	29	0.5760	2.834	2.827	10 37	0 42.5	145 47	9 43.1	1.2740	1.2980	4.84	0.6854	
	30	0.5788	2.835	2.835	10 33	0 42.2	144 51	9 39.4	1.2743	1.2974	4.95	0.6950	
	31	0.5815	+ 2.838	+ 2.844	10 32	0 42.1	143 55	9 35.7	+ 1.2746	+ 1.2968	+ 5.06	+ 0.7043	
	Aug.	1	0.5843	2.841	2.853	10 33	0 42.2	142 59	9 31.9	1.2751	1.2962	5.17	0.7133
		2	0.5870	2.847	2.862	10 38	0 42.5	142 2	9 28.1	1.2760	1.2956	5.27	0.7219
		3	0.5897	2.855	2.870	10 42	0 42.8	141 6	9 24.4	1.2773	1.2950	5.37	0.7303
		4	0.5925	2.865	2.878	10 44	0 42.9	140 9	9 20.6	1.2789	1.2944	5.47	0.7384
	h (21.0)	5	0.5952	+ 2.877	+ 2.886	10 44	0 42.9	139 12	9 16.8	+ 1.2808	+ 1.2938	+ 5.57	+ 0.7463
		6	0.5979	2.891	2.894	10 40	0 42.7	138 15	9 13.0	1.2828	1.2932	5.67	0.7539
		7	0.6007	2.904	2.902	10 34	0 42.3	137 18	9 9.2	1.2847	1.2925	5.77	0.7612
		8	0.6034	2.917	2.910	10 24	0 41.6	136 20	9 5.3	1.2863	1.2919	5.87	0.7683
		9	0.6062	2.928	2.918	10 13	0 40.9	135 23	9 1.5	1.2877	1.2913	5.96	0.7752
10		0.6089	+ 2.935	+ 2.926	10 3	0 40.2	134 25	8 57.7	+ 1.2885	+ 1.2907	+ 6.05	+ 0.7818	
11		0.6116	2.940	2.933	9 54	0 39.6	133 27	8 53.8	1.2891	1.2900	6.14	0.7883	
12		0.6144	2.944	2.941	9 48	0 39.2	132 28	8 49.9	1.2895	1.2894	6.23	0.7945	
13		0.6171	2.947	2.949	9 45	0 39.0	131 30	8 46.0	1.2897	1.2888	6.32	0.8005	
14		0.6199	2.949	2.956	9 45	0 39.0	130 31	8 42.1	1.2901	1.2881	6.40	0.8063	
15		0.6226	+ 2.954	+ 2.963	9 48	0 39.3	129 33	8 38.2	+ 1.2910	+ 1.2875	+ 6.49	+ 0.8120	
16		0.6253	+ 2.960	+ 2.970	9 52	0 39.5	128 34	8 34.3	+ 1.2920	+ 1.2869	+ 6.57	+ 0.8174	

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f		f'		G		H		Log g .	Log h .	i	Log i .	
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.							
		y	s	s	°	h m		h m					"		
Aug.	16	0.6253	+ 2.960	+ 2.970	9 52	0 39.5	128 34	8 34.3	+ 1.2910	+ 1.2860	+ 6.57	+ 0.8174			
	17	0.6281	2.969	2.977	9 55	0 39.7	127 35	8 34.3	1.2934	1.2863	6.65	0.8226			
	18	0.6308	2.980	2.984	9 57	0 39.8	126 35	8 29.3	1.2950	1.2857	6.72	0.8277			
	19	0.6335	2.992	2.991	9 56	0 39.7	125 36	8 22.4	1.2968	1.2851	6.80	0.8326			
	20	0.6363	3.005	2.998	9 52	0 39.5	124 36	8 18.4	1.2985	1.2845	6.88	0.8373			
	^h (22.0)	21	0.6390	+ 3.017	+ 3.005	9 46	0 39.1	123 36	8 14.4	+ 1.3001	+ 1.2839	+ 6.95	+ 0.8418		
	22	0.6418	3.027	3.012	9 37	0 38.5	122 36	8 10.4	1.3013	1.2833	7.02	0.8462			
	23	0.6445	3.034	3.019	9 27	0 37.8	121 36	8 6.4	1.3021	1.2828	7.09	0.8504			
	24	0.6472	3.038	3.025	9 19	0 37.3	120 36	8 2.4	1.3026	1.2822	7.15	0.8544			
	25	0.6500	3.040	3.032	9 12	0 36.8	119 35	7 58.3	1.3028	1.2817	7.22	0.8583			
	26	0.6527	+ 3.040	+ 3.038	9 8	0 36.5	118 34	7 54.3	+ 1.3026	+ 1.2811	+ 7.28	+ 0.8621			
	27	0.6554	3.040	3.044	9 8	0 36.5	117 33	7 50.2	1.3026	1.2806	7.34	0.8656			
	28	0.6582	3.040	3.050	9 10	0 36.7	116 32	7 46.1	1.3027	1.2801	7.40	0.8691			
	29	0.6609	3.043	3.057	9 15	0 37.0	115 31	7 42.1	1.3030	1.2796	7.45	0.8724			
	30	0.6637	3.048	3.063	9 20	0 37.3	114 30	7 38.0	1.3039	1.2791	7.50	0.8755			
	31	0.6664	+ 3.055	+ 3.069	9 24	0 37.6	113 28	7 33.9	+ 1.3051	+ 1.2786	+ 7.56	+ 0.8785			
	Sept.	1	0.6691	3.064	3.075	9 26	0 37.7	112 26	7 29.7	1.3065	1.2782	7.61	0.8813		
		2	0.6719	3.076	3.082	9 25	0 37.7	111 24	7 25.6	1.3082	1.2778	7.66	0.8840		
		3	0.6746	3.089	3.088	9 21	0 37.4	110 22	7 21.5	1.3098	1.2773	7.70	0.8866		
		^h (23.0)	4	0.6773	3.098	3.093	9 15	0 37.0	109 19	7 17.3	1.3110	1.2769	7.74	0.8890	
5		0.6801	+ 3.106	+ 3.098	9 7	0 36.5	108 17	7 13.1	+ 1.3121	+ 1.2765	+ 7.79	+ 0.8913			
6		0.6828	3.113	3.104	8 59	0 35.9	107 14	7 8.9	1.3129	1.2762	7.83	0.8935			
7		0.6856	3.118	3.110	8 52	0 35.5	106 12	7 4.8	1.3133	1.2758	7.86	0.8955			
8		0.6883	3.120	3.116	8 48	0 35.2	105 9	7 0.6	1.3135	1.2755	7.90	0.8974			
9		0.6910	3.121	3.121	8 46	0 35.1	104 6	6 56.4	1.3136	1.2752	7.93	0.8992			
10		0.6938	+ 3.121	+ 3.126	8 47	0 35.1	103 3	6 52.2	+ 1.3137	+ 1.2749	+ 7.96	+ 0.9008			
	11	0.6965	3.124	3.132	8 51	0 35.4	102 0	6 48.0	1.3142	1.2746	7.99	0.9023			
	12	0.6993	3.128	3.138	8 57	0 35.8	100 56	6 43.7	1.3148	1.2744	8.01	0.9037			
	13	0.7020	3.134	3.143	9 3	0 36.2	99 53	6 39.5	1.3158	1.2741	8.03	0.9049			
	14	0.7047	3.143	3.148	9 7	0 36.5	98 49	6 35.3	1.3171	1.2739	8.05	0.9060			
	15	0.7075	+ 3.154	+ 3.154	9 10	0 36.7	97 46	6 31.1	+ 1.3186	+ 1.2737	+ 8.07	+ 0.9070			
	16	0.7102	3.164	3.159	9 10	0 36.7	96 42	6 26.8	1.3202	1.2736	8.09	0.9079			
	17	0.7129	3.175	3.165	9 6	0 36.4	95 38	6 22.5	1.3216	1.2734	8.10	0.9086			
	18	0.7157	3.185	3.171	9 1	0 36.1	94 35	6 18.3	1.3227	1.2733	8.11	0.9092			
	19	0.7184	3.192	3.176	8 55	0 35.7	93 31	6 14.1	1.3235	1.2733	8.12	0.9097			
	^h (0.0)	20	0.7212	+ 3.196	+ 3.182	8 49	0 35.3	92 27	6 9.8	+ 1.3239	+ 1.2732	+ 8.13	+ 0.9101		
	21	0.7239	3.197	3.187	8 44	0 34.9	91 23	6 5.5	1.3240	1.2731	8.13	0.9103			
	22	0.7266	3.196	3.192	8 42	0 34.8	90 19	6 1.3	1.3239	1.2731	8.14	0.9104			
	23	0.7294	3.196	3.198	8 43	0 34.9	89 14	5 56.9	1.3238	1.2731	8.14	0.9104			
	24	0.7321	3.195	3.203	8 47	0 35.1	88 10	5 52.7	1.3237	1.2732	8.13	0.9102			
	25	0.7348	+ 3.196	+ 3.209	8 54	0 35.6	87 6	5 48.4	+ 1.3240	+ 1.2732	+ 8.13	+ 0.9100			
	26	0.7376	3.199	3.214	9 1	0 36.1	86 2	5 44.1	1.3245	1.2733	8.12	0.9095			
	27	0.7403	3.205	3.220	9 8	0 36.5	84 58	5 39.9	1.3255	1.2734	8.11	0.9090			
	28	0.7431	3.213	3.225	9 13	0 36.9	83 54	5 35.6	1.3268	1.2735	8.10	0.9083			
	29	0.7458	3.223	3.230	9 16	0 37.1	82 49	5 31.3	1.3282	1.2736	8.08	0.9075			
	30	0.7485	+ 3.234	+ 3.235	9 16	0 37.1	81 45	5 27.0	+ 1.3297	+ 1.2738	+ 8.06	+ 0.9066			
Oct.	1	0.7513	+ 3.244	+ 3.240	9 14	0 36.9	80 41	5 22.7	+ 1.3311	+ 1.2740	+ 8.05	+ 0.9056			

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f		f'		G		H		Log g .	Log h .	i	Log i .
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
	y	s	s	°	h m	°	h m						
Oct.	1	0.7513	+ 3.244	+ 3.240	9 14	0 36.9	80 41	5 22.7	+ 1.3311	+ 1.2740	+ 8.05	+ 0.9056	
	2	0.7540	3.254	3.246	9 9	0 36.6	79 37	5 18.5	1.3322	1.2742	8.03	0.9044	
	3	0.7567	3.261	3.252	9 4	0 36.3	78 33	5 14.2	1.3330	1.2745	8.00	0.9031	
	4	0.7595	3.265	3.257	9 0	0 36.0	77 29	5 9.9	1.3336	1.2747	7.97	0.9016	
	h	5	0.7622	3.268	3.263	8 57	0 35.8	76 25	5 5.7	1.3338	1.2750	7.94	0.9000
	(1.0)	6	0.7650	+ 3.269	+ 3.268	8 57	0 35.8	75 21	5 1.4	+ 1.3340	+ 1.2753	+ 7.91	+ 0.8983
	7	0.7677	3.270	3.274	9 0	0 36.0	74 17	4 57.1	1.3342	1.2757	7.88	0.8964	
	8	0.7704	3.272	3.280	9 6	0 36.4	73 13	4 52.9	1.3345	1.2760	7.84	0.8944	
	9	0.7732	3.276	3.286	9 14	0 36.9	72 10	4 48.7	1.3352	1.2764	7.80	0.8923	
	10	0.7759	3.281	3.291	9 22	0 37.5	71 6	4 44.4	1.3361	1.2768	7.76	0.8900	
	11	0.7787	+ 3.290	+ 3.297	9 29	0 37.9	70 2	4 40.1	+ 1.3374	+ 1.2772	+ 7.72	+ 0.8876	
	12	0.7814	3.301	3.303	9 35	0 38.3	68 59	4 35.9	1.3389	1.2776	7.67	0.8850	
	13	0.7841	3.312	3.309	9 38	0 38.5	67 56	4 31.7	1.3405	1.2780	7.63	0.8823	
	14	0.7869	3.324	3.315	9 38	0 38.5	66 52	4 27.5	1.3421	1.2785	7.58	0.8794	
	15	0.7896	3.334	3.321	9 36	0 38.4	65 49	4 23.3	1.3434	1.2790	7.52	0.8764	
	16	0.7923	+ 3.343	+ 3.327	9 32	0 38.1	64 46	4 19.1	+ 1.3444	+ 1.2795	+ 7.47	+ 0.8732	
	17	0.7951	3.348	3.333	9 28	0 37.9	63 43	4 14.9	1.3451	1.2800	7.41	0.8699	
	18	0.7978	3.352	3.340	9 25	0 37.7	62 40	4 10.7	1.3454	1.2805	7.35	0.8664	
	19	0.8006	3.353	3.346	9 25	0 37.7	61 37	4 6.5	1.3456	1.2810	7.29	0.8627	
	h	20	0.8033	3.353	3.353	9 27	0 37.8	60 34	4 2.3	1.3456	1.2816	7.23	0.8589
	(2.0)	21	0.8060	+ 3.353	+ 3.360	9 33	0 38.2	59 32	3 58.1	+ 1.3457	+ 1.2822	+ 7.16	+ 0.8549
	22	0.8088	3.356	3.367	9 40	0 38.7	58 29	3 53.9	1.3460	1.2827	7.09	0.8508	
	23	0.8115	3.359	3.374	9 49	0 39.3	57 27	3 49.8	1.3467	1.2833	7.02	0.8464	
	24	0.8142	3.365	3.380	9 58	0 39.9	56 25	3 45.7	1.3477	1.2839	6.95	0.8419	
	25	0.8170	3.374	3.387	10 5	0 40.3	55 23	3 41.5	1.3491	1.2845	6.88	0.8372	
	26	0.8197	+ 3.385	+ 3.393	10 10	0 40.7	54 21	3 37.4	+ 1.3506	+ 1.2851	+ 6.80	+ 0.8323	
	27	0.8225	3.397	3.400	10 13	0 40.9	53 19	3 33.3	1.3523	1.2858	6.72	0.8272	
	28	0.8252	3.409	3.407	10 13	0 40.9	52 18	3 29.2	1.3539	1.2864	6.64	0.8220	
	29	0.8279	3.421	3.414	10 10	0 40.7	51 16	3 25.1	1.3553	1.2870	6.55	0.8165	
	30	0.8307	3.431	3.422	10 7	0 40.5	50 15	3 21.0	1.3564	1.2877	6.47	0.8108	
	31	0.8334	+ 3.438	+ 3.429	10 4	0 40.3	49 14	3 16.9	+ 1.3573	+ 1.2883	+ 6.38	+ 0.8049	
Nov.	1	0.8361	3.443	3.437	10 2	0 40.1	48 13	3 12.9	1.3579	1.2890	6.29	0.7988	
	2	0.8389	3.446	3.444	10 2	0 40.1	47 12	3 8.8	1.3583	1.2896	6.20	0.7925	
	3	0.8416	3.449	3.451	10 5	0 40.3	46 11	3 4.7	1.3588	1.2902	6.11	0.7859	
	h	4	0.8444	3.452	3.459	10 11	0 40.7	45 11	3 0.7	1.3593	1.2909	6.01	0.7791
	(3.0)	5	0.8471	+ 3.458	+ 3.467	10 19	0 41.3	44 11	2 56.7	+ 1.3602	+ 1.2916	+ 5.92	+ 0.7720
	6	0.8498	3.465	3.475	10 27	0 41.8	43 10	2 52.7	1.3613	1.2922	5.82	0.7647	
	7	0.8526	3.475	3.483	10 35	0 42.3	42 10	2 48.7	1.3627	1.2929	5.72	0.7572	
	8	0.8553	3.487	3.491	10 41	0 42.7	41 10	2 44.7	1.3644	1.2935	5.61	0.7493	
	9	0.8580	3.501	3.500	10 45	0 43.0	40 11	2 40.7	1.3662	1.2942	5.51	0.7412	
	10	0.8608	+ 3.516	+ 3.509	10 46	0 43.1	39 11	2 36.7	+ 1.3680	+ 1.2948	+ 5.40	+ 0.7327	
	11	0.8635	3.530	3.518	10 45	0 43.0	38 12	2 32.8	1.3696	1.2955	5.30	0.7240	
	12	0.8663	3.541	3.526	10 42	0 42.8	37 12	2 28.8	1.3710	1.2961	5.19	0.7149	
	13	0.8690	3.549	3.534	10 39	0 42.6	36 13	2 24.9	1.3720	1.2968	5.08	0.7055	
	14	0.8717	3.556	3.543	10 36	0 42.4	35 14	2 20.9	1.3727	1.2974	4.96	0.6958	
	15	0.8745	+ 3.560	+ 3.551	10 35	0 42.3	34 15	2 17.0	+ 1.3732	+ 1.2980	+ 4.85	+ 0.6857	
	16	0.8772	+ 3.561	+ 3.559	10 36	0 42.4	33 16	2 13.1	+ 1.3735	+ 1.2986	+ 4.73	+ 0.6752	

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f		f'		G		H		Log g .	Log h .	i	Log i .
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.						
	y	s	s	°	h m	°	h m	°	h m				
Nov.	16	0.8772	+ 3.561	+ 3.559	10 36	0 42.4	33 16	2 13.1	+ 1.3735	+ 1.2986	+ 4.73	+ 0.6752	
	17	0.8800	3.565	3.569	10 40	0 42.7	32 18	2 9.2	1.3739	1.2992	4.62	0.6643	
	18	0.8827	3.569	3.579	10 46	0 43.1	31 19	2 5.3	1.3745	1.2998	4.50	0.6531	
	h (4.0)	19	0.8854	3.575	3.589	10 54	0 43.6	30 21	2 1.4	1.3753	1.3004	4.38	0.6412
		20	0.8882	3.583	3.598	11 2	0 44.1	29 23	1 57.5	1.3765	1.3010	4.26	0.6290
	21	0.8909	+ 3.593	+ 3.607	11 8	0 44.5	28 25	1 53.7	+ 1.3780	+ 1.3015	+ 4.13	+ 0.6163	
	22	0.8936	3.606	3.616	11 13	0 44.9	27 27	1 49.8	1.3797	1.3021	4.01	0.6030	
	23	0.8964	3.621	3.625	11 16	0 45.1	26 29	1 45.9	1.3815	1.3026	3.88	0.5892	
	24	0.8991	3.636	3.635	11 15	0 45.0	25 31	1 42.1	1.3834	1.3031	3.76	0.5747	
	25	0.9019	3.651	3.645	11 13	0 44.9	24 34	1 38.3	1.3850	1.3036	3.63	0.5597	
	26	0.9046	+ 3.663	+ 3.655	11 9	0 44.6	23 36	1 34.4	+ 1.3864	+ 1.3041	+ 3.50	+ 0.5439	
	27	0.9073	3.673	3.664	11 4	0 44.3	22 39	1 30.6	1.3875	1.3046	3.37	0.5274	
	28	0.9101	3.681	3.674	11 1	0 44.1	21 42	1 26.8	1.3883	1.3051	3.24	0.5101	
	29	0.9128	3.688	3.685	10 59	0 43.9	20 44	1 22.9	1.3892	1.3055	3.10	0.4920	
	30	0.9155	3.694	3.695	11 0	0 44.0	19 47	1 19.1	1.3898	1.3060	2.97	0.4729	
Dec.	1	0.9183	+ 3.700	+ 3.705	11 3	0 44.2	18 50	1 15.3	+ 1.3905	+ 1.3064	+ 2.84	+ 0.4528	
	2	0.9210	3.706	3.715	11 9	0 44.6	17 53	1 11.5	1.3914	1.3068	2.70	0.4315	
	3	0.9238	3.716	3.726	11 15	0 45.0	16 57	1 7.8	1.3926	1.3071	2.56	0.4090	
	4	0.9265	3.728	3.737	11 21	0 45.4	16 0	1 4.0	1.3941	1.3075	2.43	0.3851	
	h (5.0)	5	0.9292	3.741	3.747	11 26	0 45.7	15 3	1 0.2	1.3959	1.3078	2.29	0.3597
		6	0.9320	+ 3.756	+ 3.757	11 28	0 45.9	14 7	0 56.5	+ 1.3977	+ 1.3082	+ 2.15	+ 0.3326
	7	0.9347	3.772	3.767	11 28	0 45.9	13 10	0 52.7	1.3996	1.3085	2.01	0.3034	
	8	0.9374	3.787	3.776	11 26	0 45.7	12 14	0 48.9	1.4014	1.3087	1.87	0.2721	
	9	0.9402	3.801	3.786	11 22	0 45.5	11 17	0 45.1	1.4029	1.3090	1.73	0.2384	
	10	0.9429	3.813	3.797	11 17	0 45.1	10 21	0 41.4	1.4042	1.3093	1.59	0.2014	
	11	0.9457	+ 3.823	+ 3.808	11 12	0 44.8	9 25	0 37.7	+ 1.4051	+ 1.3095	+ 1.45	+ 0.1608	
	12	0.9484	3.830	3.819	11 8	0 44.5	8 29	0 33.9	1.4058	1.3097	1.31	0.1159	
	13	0.9511	3.835	3.830	11 6	0 44.4	7 32	0 30.1	1.4063	1.3099	1.16	0.0655	
	14	0.9539	3.839	3.841	11 7	0 44.5	6 36	0 26.4	1.4068	1.3100	1.02	0.0085	
	15	0.9566	3.844	3.852	11 10	0 44.7	5 40	0 22.7	1.4074	1.3102	0.88	9.9427	
	16	0.9594	+ 3.851	+ 3.863	11 14	0 44.9	4 44	0 18.9	+ 1.4082	+ 1.3103	+ 0.73	+ 9.8648	
	17	0.9621	3.859	3.874	11 20	0 45.3	3 48	0 15.2	1.4093	1.3104	0.59	9.7696	
	18	0.9648	3.870	3.884	11 24	0 45.6	2 52	0 11.5	1.4107	1.3105	0.44	9.6474	
	19	0.9676	3.884	3.895	11 27	0 45.8	1 56	0 7.7	1.4123	1.3105	0.30	9.4764	
	20	0.9703	3.899	3.906	11 28	0 45.9	1 0	0 4.0	1.4141	1.3106	0.15	9.1901	
	h (6.0)	21	0.9730	+ 3.916	+ 3.917	11 26	0 45.7	0 4	0 0.3	+ 1.4157	+ 1.3106	+ 0.01	+ 8.0102
		22	0.9758	3.931	3.927	11 22	0 45.5	359 8	23 56.5	1.4175	1.3106	- 0.13	- 9.1285
		23	0.9785	3.945	3.937	11 16	0 45.1	358 11	23 52.7	1.4188	1.3105	0.28	9.4457
		24	0.9813	3.958	3.948	11 9	0 44.6	357 15	23 49.0	1.4201	1.3105	0.42	9.6270
		25	0.9840	3.968	3.960	11 3	0 44.2	356 19	23 45.3	1.4210	1.3104	0.57	9.7544
		26	0.9867	+ 3.976	+ 3.971	10 59	0 43.9	355 23	23 41.5	+ 1.4217	+ 1.3103	- 0.71	- 9.8527
		27	0.9895	3.982	3.982	10 55	0 43.7	354 27	23 37.8	1.4224	1.3102	0.86	9.9327
		28	0.9922	3.988	3.992	10 57	0 43.8	353 31	23 34.1	1.4231	1.3101	1.00	0.0001
		29	0.9949	3.995	4.003	10 59	0 43.9	352 34	23 30.3	1.4239	1.3099	1.14	0.0583
		30	0.9977	4.003	4.013	11 2	0 44.1	351 38	23 26.5	1.4249	1.3097	1.29	0.1095
		31	1.0004	+ 4.014	+ 4.024	11 5	0 44.3	350 42	23 22.8	+ 1.4262	+ 1.3095	- 1.43	- 0.1552
		32	1.0032	+ 4.028	+ 4.035	11 8	0 44.5	349 45	23 19.0	+ 1.4277	+ 1.3093	- 1.57	- 0.1964

BESSELIAN AND INDEPENDENT STAR-NUMBERS, 1900. (609)

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON SIDEREAL TWELVE HOURS.

Mean Solar Date.	Log <i>A'</i> .	Log <i>B'</i> .	Log <i>C</i> .	Log <i>D</i> .	<i>f'</i>	<i>G'</i>	<i>H</i>	Log <i>g'</i> .	Log <i>h</i> .	Log <i>i</i> .
Jan. 0.72	+ 9.5428	+ 0.3379	- 0.5377	+ 1.3031	+ 1.075	17 17	350 16	+ 0.8650	+ 1.3094	- 0.1750
10.69	9.5840	0.3343	0.8227	1.2814	1.182	15 41	340 49	0.9026	1.3062	0.4600
20.67	9.6195	0.3202	0.9839	1.2440	1.283	14 3	331 13	0.9349	1.3013	0.6212
30.64	9.6497	0.2985	1.0905	1.1880	1.374	12 31	321 23	0.9623	1.2952	0.7278
Feb. 9.61	9.6749	0.2736	1.1646	1.1080	1.457	11 12	311 17	0.9854	1.2886	0.8019
19.58	+ 9.6961	+ 0.2508	- 1.2159	+ 0.9931	+ 1.529	10 8	300 54	+ 1.0051	+ 1.2824	- 0.8532
Mar. 1.56	9.7141	0.2361	1.2493	0.8178	1.594	9 25	290 19	1.0221	1.2773	0.8866
11.53	9.7297	0.2343	1.2680	+ 0.4943	1.652	9 3	279 34	1.0374	1.2741	0.9053
21.50	9.7441	0.2483	1.2730	- 9.6119	1.708	9 3	268 45	1.0517	1.2731	0.9103
31.47	9.7581	0.2771	1.2651	0.5920	1.763	9 21	258 1	1.0661	1.2746	0.9024
Apr. 10.45	+ 9.7724	+ 0.3166	- 1.2438	- 0.8612	+ 1.821	9 54	247 30	+ 1.0811	+ 1.2782	- 0.8811
20.42	9.7875	0.3616	1.2082	1.0168	1.887	10 36	237 14	1.0971	1.2834	0.8455
30.39	9.8038	0.4074	1.1557	1.1210	1.959	11 21	227 17	1.1145	1.2896	0.7930
May 10.37	9.8213	0.4505	1.0820	1.1943	2.039	11 59	217 40	1.1330	1.2958	0.7193
20.34	9.8398	0.4880	0.9784	1.2460	2.127	12 29	208 22	1.1524	1.3016	0.6157
30.31	+ 9.8589	+ 0.5186	- 0.8256	- 1.2810	+ 2.223	12 50	199 19	+ 1.1721	+ 1.3061	- 0.4629
June 9.28	9.8783	0.5415	0.5677	1.3020	2.325	12 56	190 27	1.1916	1.3092	0.2050
19.26	9.8974	0.5566	- 9.7802	1.3104	2.429	12 49	181 41	1.2105	1.3105	- 9.4175
29.23	9.9159	0.5640	+ 0.3985	1.3067	2.535	12 30	172 57	1.2285	1.3100	+ 0.0358
July 9.20	9.9330	0.5646	0.7434	1.2908	2.636	12 3	164 10	1.2448	1.3076	0.3807
19.17	+ 9.9487	+ 0.5594	+ 0.9255	- 1.2616	+ 2.734	11 30	155 14	+ 1.2597	+ 1.3035	+ 0.5628
29.15	9.9629	0.5494	1.0448	1.2173	2.824	10 54	146 6	1.2730	1.2982	0.6821
Aug. 8.12	9.9755	0.5372	1.1284	1.1542	2.907	10 18	136 42	1.2847	1.2922	0.7657
18.09	9.9865	0.5244	1.1883	1.0654	2.981	9 46	127 0	1.2950	1.2859	0.8256
28.06	9.9960	0.5142	1.2303	0.9370	3.048	9 20	116 59	1.3040	1.2803	0.8676
Sept. 7.04	+ 0.0044	+ 0.5088	+ 1.2573	- 0.7339	+ 3.107	9 3	106 41	+ 1.3120	+ 1.2760	+ 0.8946
17.01	0.0121	0.5107	1.2710	- 0.3042	3.162	8 56	96 10	1.3195	1.2735	0.9083
26.98	0.0194	0.5207	1.2720	+ 0.1660	3.216	8 59	85 31	1.3269	1.2733	0.9093
Oct. 6.96	0.0267	0.5384	1.2601	0.6922	3.271	9 12	74 52	1.3345	1.2755	0.8974
16.93	0.0345	0.5621	1.2345	0.9166	3.330	9 32	64 19	1.3427	1.2797	0.8718
26.90	+ 0.0430	+ 0.5897	+ 1.1930	+ 1.0552	+ 3.396	9 57	53 56	+ 1.3518	+ 1.2854	+ 0.8303
Nov. 5.87	0.0525	0.6183	1.1320	1.1502	3.470	10 24	43 48	1.3618	1.2918	0.7693
15.85	0.0629	0.6452	1.0448	1.2172	3.555	10 47	33 55	1.3728	1.2982	0.6821
25.82	0.0742	0.6692	0.9174	1.2637	3.648	11 6	24 15	1.3845	1.3038	0.5547
Dec. 5.79	0.0860	0.6879	0.7146	1.2933	3.749	11 17	14 47	1.3966	1.3079	0.3519
15.76	+ 0.0981	+ 0.7009	+ 0.2855	+ 1.3083	+ 3.855	11 18	5 25	+ 1.4088	+ 1.3102	+ 9.9228
25.74	0.1102	0.7078	- 0.1411	1.3094	3.963	11 10	356 5	1.4206	1.3104	- 9.7784
35.71	+ 0.1216	+ 0.7088	- 0.6693	+ 1.2967	+ 4.069	10 55	346 44	+ 1.4317	+ 1.3084	- 0.3066

$$E = + 0.003^s$$

The above numbers are equivalent to those used in computing the apparent places of the fixed stars, given on pages 624-31, from the mean places, given on pages 610-11. In order to render exact interpolation possible through intervals of ten days, all short period terms have been omitted.

MEAN PLACES FOR 1900.0. (January 0.099^d, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s		°	'	"	
β Cassiopeiæ	2.4	0	3	50.342	+ 3.1769	+ 58	35	53.62	+ 19.864
22 Andromedæ	4.9	0	5	7.289	3.1048	+ 45	30	56.84	20.037
ι Ceti	3.6	0	14	19.988	3.0573	- 9	22	41.75	19.978
44 Piscium	5.8	0	20	16.576	3.0738	+ 1	23	9.19	19.945
12 Ceti	6.0	0	24	56.140	3.0620	- 4	30	35.34	19.928
21 Cassiopeiæ	5.7	0	39	2.295	+ 3.8811	+ 74	26	29.38	+ 19.730
μ Andromedæ	4.0	0	51	12.035	3.3165	+ 37	57	25.13	19.579
κ Tucanæ	4.9	1	12	22.617	2.0423	- 69	24	26.58	19.145
f Piscium	5.1	1	12	38.422	3.0915	+ 3	5	16.48	19.023
ν Andromedæ	4.2	1	30	55.518	3.5045	+ 40	54	19.25	18.113
π Piscium	5.5	1	31	47.763	+ 3.1747	+ 11	37	48.21	+ 18.495
ν Piscium	4.6	1	36	13.592	3.1184	+ 4	58	53.98	18.309
β Trianguli	3.1	2	3	35.454	3.5569	+ 34	30	51.70	17.158
δ Hydri	4.2	2	19	58.057	+ 1.0540	- 69	6	51.87	16.443
μ Hydri	5.3	2	33	46.961	- 1.3883	- 79	32	44.55	15.663
σ Arietis	5.5	2	45	58.208	+ 3.3058	+ 14	40	12.09	+ 14.982
47 Cephei (H.)	5.7	2	52	46.701	7.7787	+ 79	1	25.04	14.625
48 Cephei (H.)	5.5	3	7	37.246	+ 7.4471	+ 77	22	2.68	13.641
ι Hydri	5.7	3	18	26.656	- 1.5822	- 77	45	13.38	13.031
f Tauri	4.3	3	25	21.065	+ 3.3071	+ 12	35	38.72	12.526
γ Camelopardalis (H.)	4.6	3	39	47.809	+ 6.2601	+ 71	1	26.87	+ 11.456
γ Hydri	3.3	3	48	47.041	- 0.9813	- 74	32	43.73	10.978
α Camelopardalis	4.4	4	44	6.390	+ 5.9381	+ 66	10	22.57	6.523
i Tauri	5.2	4	45	31.392	3.5061	+ 18	40	11.10	6.366
β Eridani	2.9	5	2	56.016	2.9485	- 5	12	56.14	4.866
τ Orionis	3.8	5	12	45.043	+ 2.9119	- 6	57	8.55	+ 4.099
Groombridge 966	6.4	5	26	20.990	7.9985	+ 74	58	39.95	2.950
δ Doradus	4.4	5	44	35.585	0.1009	- 65	46	22.86	+ 1.346
22 Camelopardalis (H.)	4.7	6	7	49.699	6.6201	+ 69	21	18.43	- 0.798
ϕ ⁵ Aurigæ	5.4	6	39	32.003	+ 4.3313	+ 43	40	37.37	3.281
ζ Mensæ	5.6	6	48	22.387	- 4.9189	- 80	42	29.17	- 4.118
γ ² Volantis (<i>var.</i>)	3.9	7	9	35.764	- 0.4963	- 70	20	11.21	5.917
25 Camelopardalis (H.)	5.3	7	10	3.673	+ 12.9050	+ 82	36	16.06	6.080
30 Monocerotis	3.9	8	20	39.871	+ 3.0001	- 3	34	48.30	11.566
θ Chamæleontis	4.6	8	23	38.640	- 1.7223	- 77	9	42.92	11.741
σ Hydræ	4.5	8	33	31.887	+ 3.1391	+ 3	41	33.53	- 12.460
σ ² Cancri (<i>mean</i>)	5.5	8	48	8.711	3.6712	+ 30	57	29.63	13.445
σ ² Ursæ Majoris	5.0	9	1	36.019	5.3421	+ 67	32	26.09	14.340
β Argûs	2.0	9	12	6.235	+ 0.6754	- 69	18	18.97	14.811
ζ Chamæleontis	5.2	9	36	50.087	- 1.6063	- 80	29	30.92	16.242
19 Leonis Minoris	5.2	9	51	33.713	+ 3.6904	+ 41	31	55.09	- 17.003
π Leonis	5.0	9	54	55.783	3.1734	+ 8	31	26.78	17.162
μ Hydræ	4.1	10	21	15.232	2.8999	- 16	19	32.43	18.294
β Leonis Minoris	4.3	10	22	6.200	3.4835	+ 37	13	10.79	18.358
α Antliæ	4.5	10	22	34.505	2.7499	- 30	33	31.47	18.286
9 Draconis (H.)	5.0	10	26	36.314	+ 5.2251	+ 76	13	41.51	- 18.415
η Argûs (<i>var.</i>)	1-6	10	41	10.805	2.3175	- 59	9	31.43	18.882
δ ² Chamæleontis	4.7	10	44	50.806	0.6090	- 80	0	45.91	18.982
Groombridge 1706	6.3	10	51	57.803	+ 4.9345	+ 78	18	21.32	19.205
η Octantis	6.1	11	0	0.96	- 0.3055	- 84	3	21.36	19.369
ρ ³ Leonis	6.2	11	1	48.201	+ 3.0617	+ 2	29	54.64	- 19.484

MEAN PLACES FOR 1900.0. (January 0.099^d, Washington.)

Name of Star.	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	'	"	"
λ Draconis	4.0	11	25	28.371	+ 3.6127	+ 69	52	58.94	- 19.840
ξ Hydræ	3.8	11	28	4.937	2.9437	- 31	18	15.52	19.907
γ Corvi	2.7	12	10	39.729	3.0799	- 16	59	11.73	20.009
2 Canum Venaticorum	6.0	12	11	7.058	3.0194	+ 41	13	0.40	20.069
β Chamæleontis	4.5	12	12	28.423	3.4194	- 78	45	24.98	20.000
6 Ursæ Minoris (B.)	6.2	12	14	23.105	+ 0.2468	+ 88	15	15.20	- 19.949
γ Virginis (<i>mean</i>)	2.9	12	36	35.618	3.0391	- 0	54	3.34	19.788
32 ² Camelopardalis (H.)	5.2	12	48	23.181	0.4083	+ 83	57	23.39	19.585
δ Muscæ	3.8	12	55	23.180	4.0511	- 71	0	33.96	19.496
ε Virginis	3.1	12	57	11.943	2.9865	+ 11	29	47.78	19.411
κ Octantis	5.4	13	24	42.05	+ 8.8361	- 85	16	24.74	- 18.716
B. A. C. 4536	5.0	13	30	19.973	2.6831	+ 37	41	41.05	18.514
m Virginis	5.4	13	36	21.744	3.1436	- 8	11	54.28	18.268
π Hydræ	3.6	14	0	40.509	3.4060	- 26	12	2.43	17.478
κ Virginis	4.2	14	7	33.623	3.1950	- 9	48	29.84	16.889
δ Octantis	5.0	14	10	51.774	+ 9.0881	- 83	12	35.11	- 16.880
λ Virginis	4.7	14	13	41.834	+ 3.2387	- 12	54	39.01	16.711
5 Ursæ Minoris	4.5	14	27	43.874	- 0.1802	+ 76	8	26.20	16.003
α Apodis	4.1	14	35	25.438	+ 7.2294	- 78	37	12.65	15.635
γ Scorpæ	3.4	14	58	12.953	3.5017	- 24	53	20.06	14.333
δ Bootis	3.5	15	11	28.279	+ 2.4191	+ 33	41	15.95	- 13.574
ρ Octantis	5.7	15	20	11.44	+ 13.1246	- 84	7	55.04	12.794
γ ² Ursæ Minoris	3.2	15	20	53.108	- 0.1268	+ 72	11	23.33	12.813
ε Ursæ Minoris	4.6	15	47	37.373	- 2.2336	+ 78	6	7.90	10.950
δ ¹ Apodis	4.9	16	5	23.584	+ 8.8030	- 78	26	37.71	9.668
γ Apodis	4.0	16	18	6.236	+ 9.0545	- 78	40	21.19	- 8.704
τ Draconis	2.8	16	22	38.177	0.8051	+ 61	44	25.78	8.205
α Trianguli Australis	2.2	16	38	4.353	6.3103	- 68	50	38.63	7.064
θ Herculis	3.9	17	52	49.410	2.0567	+ 37	15	49.08	0.624
γ ² Sagittarii	2.9	17	59	23.001	3.8517	- 30	25	31.09	- 0.252
τ Serpentis	3.5	18	16	8.102	+ 3.1025	- 2	55	29.32	+ 0.719
λ Sagittarii	2.9	18	21	47.964	3.7029	- 25	28	37.40	1.705
ε Pavonis	4.2	18	31	21.046	7.0266	- 71	30	49.34	2.570
σ Octantis	5.6	18	59	43.21	102.4341	- 89	15	16.45	5.161
θ Lyræ	4.4	19	12	53.815	2.0807	+ 37	57	20.09	6.276
β Cygni	3.1	19	26	41.306	+ 2.4187	+ 27	44	58.25	+ 7.393
ε Pavonis	4.1	19	49	1.741	7.0121	- 73	10	27.01	9.061
ε Sagittarii	4.5	19	56	30.611	3.6951	- 27	59	16.43	9.771
α Pavonis	2.1	20	17	44.279	+ 4.7732	- 57	3	19.83	11.244
12 Year Catalogue, 1879	5.3	20	52	8.049	- 2.5805	+ 80	10	38.61	13.655
α Cephei	2.6	21	16	11.621	+ 1.4360	+ 62	9	42.51	+ 15.190
λ ¹ Octantis	5.4	21	35	36.284	9.6943	- 83	10	43.32	16.185
π ² Cygni	4.5	21	43	5.902	2.2132	+ 48	50	48.42	16.574
υ Octantis	6.2	22	12	34.98	12.8355	- 86	28	33.63	17.960
σ Aquarii	4.9	22	25	21.370	3.1784	- 11	11	22.84	18.336
226 Cephei (B.)	5.7	22	30	31.091	+ 1.0701	+ 75	42	39.79	+ 18.538
β Octantis	4.4	22	35	50.852	6.4153	- 81	54	20.92	18.713
φ Aquarii	4.3	23	9	8.623	3.1078	- 6	35	17.33	19.361
ε ¹ Aquarii	5.2	23	39	0.940	3.1159	- 18	49	55.24	19.957
γ ¹ Octantis	5.2	23	46	14.612	3.6625	- 82	34	28.44	19.999
Groombridge 4163	6.6	23	49	57.607	+ 2.8662	+ 73	51	13.82	+ 20.023

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris (<i>Polaris</i>).		Mean Solar Date.	51 Cephei (Hæv.).		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Jan.	h m 1 22	° ' 0 +88 46	Jan.	h m 6 54	° ' 0 +87 12	Jan.	h m 18 4	° ' 0 +86 36	Jan.	h m 19 20	° ' 0 +88 59
	s	"		s	"		s	"		s	"
0.3	61.11	52.3	0.5	21.42	15.2	0.9	3.20	46.9	1.0	53.05	24.1
1.3	60.15	52.5	1.5	21.60	15.6	1.9	3.18	46.5	2.0	52.49	23.8
2.3	59.13	52.6	2.5	21.75	15.9	2.9	3.16	46.1	3.0	51.98	23.4
3.3	58.08	52.7	3.5	21.86	16.2	3.9	3.18	45.8	4.0	51.56	23.1
4.3	57.00	52.8	4.5	21.96	16.6	4.9	3.23	45.4	5.0	51.25	22.7
5.3	55.93	52.9	5.5	22.03	16.9	5.9	3.29	45.1	6.0	51.00	22.4
6.3	54.90	53.0	6.5	22.07	17.3	6.9	3.34	44.7	7.0	50.83	22.0
7.3	53.90	53.0	7.5	22.08	17.6	7.9	3.43	44.4	8.0	50.68	21.7
8.3	52.95	53.1	8.5	22.10	17.9	8.9	3.51	44.1	9.0	50.56	21.4
9.3	52.07	53.1	9.5	22.11	18.2	9.9	3.58	43.8	10.0	50.41	21.1
10.2	51.21	53.2	10.5	22.15	18.4	10.9	3.64	43.5	11.0	50.24	20.8
11.2	50.34	53.2	11.5	22.19	18.7	11.9	3.70	43.3	12.0	50.03	20.6
12.2	49.47	53.3	12.5	22.23	19.0	12.9	3.74	43.0	13.0	49.80	20.3
13.2	48.57	53.3	13.5	22.28	19.3	13.9	3.81	42.6	13.9	49.54	20.0
14.2	47.60	53.4	14.5	22.33	19.6	14.9	3.87	42.3	14.9	49.33	19.6
15.2	46.57	53.5	15.5	22.36	19.9	15.9	3.97	42.0	15.9	49.17	19.3
16.2	45.49	53.5	16.5	22.37	20.3	16.9	4.08	41.6	16.9	49.07	19.0
17.2	44.39	53.5	17.5	22.34	20.6	17.9	4.22	41.2	17.9	49.05	18.6
18.2	43.26	53.5	18.5	22.30	21.0	18.9	4.38	40.9	18.9	49.15	18.3
19.2	42.15	53.5	19.5	22.21	21.3	19.9	4.56	40.6	19.9	49.31	17.9
20.2	41.09	53.4	20.4	22.11	21.6	20.9	4.75	40.3	20.9	49.52	17.6
21.2	40.07	53.4	21.4	21.99	21.9	21.9	4.93	40.0	21.9	49.76	17.3
22.2	39.13	53.3	22.4	21.86	22.2	22.9	5.11	39.8	22.9	50.00	17.0
23.2	38.23	53.3	23.4	21.76	22.5	23.9	5.28	39.5	23.9	50.19	16.7
24.2	37.37	53.2	24.4	21.65	22.8	24.9	5.44	39.2	24.9	50.36	16.4
25.2	36.52	53.2	25.4	21.57	23.0	25.9	5.59	39.0	25.9	50.47	16.1
26.2	35.64	53.2	26.4	21.51	23.3	26.9	5.71	38.7	26.9	50.55	15.8
27.2	34.76	53.1	27.4	21.43	23.6	27.9	5.85	38.4	27.9	50.63	15.5
28.2	33.81	53.1	28.4	21.36	23.9	28.9	6.01	38.1	28.9	50.73	15.2
29.2	32.79	53.1	29.4	21.27	24.2	29.9	6.17	37.8	29.9	50.89	14.9
30.2	31.74	53.0	30.4	21.16	24.5	30.9	6.38	37.5	30.9	51.12	14.5
31.2	30.67	53.0	31.4	21.03	24.9	31.9	6.61	37.2	31.9	51.43	14.2
32.2	29.60	52.9	32.4	20.86	25.2	32.9	6.84	36.9	32.9	51.84	13.8

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

<i>α</i> Ursæ Minoris (Polaris).			51 Cephei (Hév.).			<i>δ</i> Ursæ Minoris.			<i>λ</i> Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
Feb.	h m	° ' "	Feb.	h m	° ' "	Feb.	h m	° ' "	Feb.	h m	° ' "
	I 22	+88 46		6 54	+87 12		18 4	+86 36		19 20	+88 59
	s	"		s	"		s	"		s	"
1.2	29.60	52.9	1.4	20.86	25.2	1.9	6.84	36.9	1.9	51.84	13.8
2.2	28.58	52.8	2.4	20.66	25.5	2.9	7.10	36.6	2.9	52.31	13.5
3.2	27.60	52.7	3.4	20.44	25.8	3.9	7.36	36.4	3.9	52.82	13.2
4.2	26.67	52.5	4.4	20.23	26.1	4.9	7.63	36.2	4.9	53.35	12.9
5.2	25.81	52.4	5.4	19.99	26.3	5.9	7.87	36.0	5.9	53.88	12.6
6.2	24.99	52.2	6.4	19.77	26.6	6.9	8.12	35.8	6.9	54.39	12.4
7.2	24.21	52.1	7.4	19.57	26.8	7.9	8.36	35.6	7.9	54.84	12.1
8.2	23.43	52.0	8.4	19.39	27.0	8.9	8.58	35.3	8.9	55.28	11.9
9.2	22.60	51.9	9.4	19.18	27.2	9.9	8.80	35.1	9.9	55.69	11.6
10.2	21.77	51.8	10.4	19.00	27.5	10.9	9.04	34.9	10.9	56.11	11.3
11.2	20.88	51.7	11.4	18.81	27.8	11.9	9.28	34.6	11.9	56.59	11.0
12.2	19.94	51.5	12.4	18.59	28.0	12.9	9.54	34.4	12.9	57.12	10.7
13.2	18.97	51.4	13.4	18.35	28.3	13.9	9.83	34.1	13.9	57.71	10.4
14.2	17.98	51.2	14.4	18.09	28.6	14.9	10.15	33.9	14.9	58.40	10.1
15.1	17.04	51.0	15.4	17.79	28.9	15.9	10.49	33.7	15.9	59.16	9.8
16.1	16.13	50.8	16.4	17.48	29.2	16.8	10.82	33.5	16.9	60.00	9.5
17.1	15.27	50.6	17.4	17.14	29.4	17.8	11.16	33.3	17.9	60.86	9.3
18.1	14.48	50.4	18.4	16.79	29.6	18.8	11.51	33.2	18.9	61.71	9.0
19.1	13.76	50.2	19.4	16.47	29.8	19.8	11.83	33.0	19.9	62.54	8.8
20.1	13.09	50.0	20.4	16.14	30.0	20.8	12.13	32.9	20.9	63.34	8.6
21.1	12.44	49.8	21.4	15.83	30.2	21.8	12.43	32.7	21.9	64.07	8.4
22.1	11.82	49.6	22.4	15.56	30.3	22.8	12.70	32.6	22.9	64.77	8.2
23.1	11.16	49.4	23.4	15.29	30.5	23.8	12.98	32.5	23.9	65.44	8.0
24.1	10.47	49.2	24.3	15.01	30.7	24.8	13.26	32.3	24.9	66.11	7.7
25.1	9.73	49.0	25.3	14.74	30.9	25.8	13.56	32.1	25.9	66.83	7.5
26.1	8.95	48.8	26.3	14.43	31.2	26.8	13.87	32.0	26.9	67.59	7.2
27.1	8.17	48.6	27.3	14.10	31.4	27.8	14.21	31.8	27.9	68.43	7.0
28.1	7.38	48.4	28.3	13.76	31.6	28.8	14.57	31.6	28.9	69.35	6.7
29.1	6.61	48.2	29.3	13.39	31.8	29.8	14.93	31.5	29.9	70.35	6.5

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris (<i>Polaris</i>).		Mean Solar Date.	51 Cephei (HEV.).		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion <i>North</i> .		Right Ascen- sion.	Declina- tion <i>North</i> .		Right Ascen- sion.	Declina- tion <i>North</i> .		Right Ascen- sion.	Declina- tion <i>North</i> .
Mar.	h m 1 21	° ' " +88 46	Mar.	h m 6 54	° ' " +87 12	Mar.	h m 18 4	° ' " +86 36	Mar.	h m 19 21	° ' " +88 59
	s	"		s	"		s	"		s	"
1.1	66.61	48.2	1.3	13.39	31.8	1.8	14.93	31.5	1.9	10.35	6.5
2.1	65.91	47.9	2.3	12.98	32.0	2.8	15.30	31.4	2.9	11.39	6.3
3.1	65.26	47.6	3.3	12.58	32.2	3.8	15.68	31.3	3.9	12.46	6.1
4.1	64.70	47.3	4.3	12.18	32.3	4.8	16.04	31.2	4.9	13.51	5.9
5.1	64.20	47.0	5.3	11.78	32.4	5.8	16.40	31.2	5.9	14.54	5.8
6.1	63.74	46.8	6.3	11.39	32.5	6.8	16.74	31.1	6.9	15.52	5.6
7.1	63.32	46.5	7.3	11.04	32.6	7.8	17.06	31.0	7.9	16.46	5.5
8.1	62.87	46.3	8.3	10.69	32.8	8.8	17.37	31.0	8.9	17.36	5.3
9.1	62.42	46.0	9.3	10.33	32.9	9.8	17.68	30.9	9.8	18.25	5.2
10.1	61.92	45.8	10.3	10.00	33.0	10.8	18.02	30.8	10.8	19.16	5.0
11.1	61.37	45.6	11.3	9.64	33.2	11.8	18.35	30.8	11.8	20.13	4.8
12.1	60.79	45.3	12.3	9.26	33.3	12.8	18.72	30.7	12.8	21.15	4.6
13.1	60.22	45.0	13.3	8.86	33.4	13.8	19.12	30.6	13.8	22.25	4.4
14.1	59.63	44.7	14.3	8.42	33.6	14.8	19.50	30.5	14.8	23.42	4.3
15.1	59.09	44.4	15.3	7.97	33.7	15.8	19.92	30.5	15.8	24.64	4.1
16.1	58.63	44.1	16.3	7.50	33.8	16.8	20.33	30.5	16.8	25.90	4.0
17.1	58.23	43.8	17.3	7.05	33.9	17.8	20.71	30.4	17.8	27.15	3.9
18.1	57.91	43.4	18.3	6.59	34.0	18.8	21.11	30.5	18.8	28.39	3.8
19.1	57.64	43.1	19.3	6.14	34.0	19.8	21.48	30.5	19.8	29.58	3.7
20.1	57.44	42.8	20.3	5.70	34.0	20.8	21.83	30.6	20.8	30.71	3.6
21.1	57.25	42.5	21.3	5.30	34.0	21.8	22.16	30.6	21.8	31.78	3.6
22.0	57.04	42.2	22.3	4.93	34.1	22.7	22.48	30.6	22.8	32.80	3.5
23.0	56.82	42.0	23.3	4.55	34.1	23.7	22.81	30.6	23.8	33.79	3.4
24.0	56.57	41.7	24.3	4.19	34.2	24.7	23.13	30.6	24.8	34.83	3.3
25.0	56.27	41.4	25.3	3.81	34.2	25.7	23.47	30.6	25.8	35.87	3.2
26.0	55.95	41.1	26.3	3.42	34.3	26.7	23.82	30.6	26.8	36.97	3.1
27.0	55.61	40.8	27.3	2.99	34.4	27.7	24.19	30.6	27.8	38.15	3.0
28.0	55.33	40.5	28.3	2.55	34.4	28.7	24.59	30.7	28.8	39.39	3.0
29.0	55.09	40.2	29.3	2.08	34.5	29.7	24.98	30.7	29.8	40.67	2.9
30.0	54.89	39.8	30.3	1.62	34.5	30.7	25.36	30.8	30.8	42.00	2.8
31.0	54.80	39.5	31.3	1.15	34.5	31.7	25.74	30.9	31.8	43.27	2.8
32.0	54.76	39.2	32.2	0.69	34.5	32.7	26.10	31.0	32.8	44.55	2.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

α Ursæ Minoris (Polaris).			51 Cephei (HEV.).			δ Ursæ Minoris.			λ Ursæ Minoris.		
Mean Solar Date.	Right Ascension.	Declination North.	Mean Solar Date.	Right Ascension.	Declination North.	Mean Solar Date.	Right Ascension.	Declination North.	Mean Solar Date.	Right Ascension.	Declination North.
Apr.	h m 1 21	+88 46	Apr.	h m 6 53	+87 12	Apr.	h m 18 4	+86 36	Apr.	h m 19 21	+88 59
	s "	"		s "	"		s "	"		s "	"
1.0	54.76	39.2	1.2	60.69	34.5	1.7	26.10	31.0	1.8	44.55	2.8
2.0	54.81	38.8	2.2	60.24	34.4	2.7	26.44	31.1	2.8	45.77	2.8
3.0	54.86	38.5	3.2	59.83	34.4	3.7	26.77	31.2	3.8	46.92	2.8
4.0	54.93	38.2	4.2	59.43	34.3	4.7	27.08	31.4	4.8	48.03	2.9
5.0	54.98	37.9	5.2	59.03	34.2	5.7	27.38	31.5	5.8	49.10	2.9
6.0	55.02	37.6	6.2	58.67	34.2	6.7	27.68	31.6	6.8	50.16	2.9
7.0	55.00	37.4	7.2	58.28	34.2	7.7	27.99	31.6	7.8	51.24	2.9
8.0	54.95	37.1	8.2	57.88	34.2	8.7	28.34	31.7	8.8	52.38	2.9
9.0	54.88	36.8	9.2	57.46	34.2	9.7	28.68	31.8	9.8	53.56	2.8
10.0	54.82	36.4	10.2	57.03	34.1	10.7	29.04	31.9	10.8	54.83	2.8
10.9	54.78	36.1	11.2	56.58	34.1	11.7	29.42	32.0	11.8	56.14	2.8
11.9	54.81	35.8	12.2	56.12	34.0	12.7	29.78	32.2	12.8	57.49	2.8
12.9	54.91	35.4	13.2	55.64	34.0	13.7	30.16	32.3	13.8	58.83	2.9
13.9	55.07	35.1	14.2	55.17	33.9	14.7	30.50	32.5	14.8	60.15	3.0
14.9	55.31	34.7	15.2	54.74	33.8	15.7	30.84	32.7	15.8	61.41	3.1
15.9	55.61	34.4	16.2	54.33	33.6	16.7	31.14	32.9	16.8	62.59	3.2
16.9	55.94	34.1	17.2	53.92	33.5	17.7	31.41	33.1	17.7	63.73	3.3
17.9	56.26	33.8	18.2	53.56	33.4	18.7	31.69	33.3	18.7	64.77	3.4
18.9	56.58	33.5	19.2	53.22	33.2	19.7	31.95	33.5	19.7	65.80	3.5
19.9	56.85	33.3	20.2	52.87	33.1	20.7	32.21	33.6	20.7	66.80	3.5
20.9	57.09	33.0	21.2	52.51	33.0	21.7	32.49	33.8	21.7	67.82	3.6
21.9	57.30	32.7	22.2	52.17	32.9	22.7	32.76	33.9	22.7	68.87	3.7
22.9	57.49	32.4	23.2	51.80	32.8	23.7	33.06	34.1	23.7	69.98	3.7
23.9	57.69	32.2	24.2	51.41	32.7	24.7	33.36	34.3	24.7	71.14	3.8
24.9	57.95	31.8	25.2	51.00	32.6	25.7	33.68	34.5	25.7	72.35	3.9
25.9	58.25	31.5	26.2	50.59	32.5	26.7	33.98	34.7	26.7	73.54	4.0
26.9	58.62	31.2	27.2	50.18	32.4	27.7	34.29	34.9	27.7	74.76	4.1
27.9	59.07	30.9	28.2	49.79	32.2	28.7	34.58	35.2	28.7	75.94	4.3
28.9	59.58	30.6	29.2	49.40	32.0	29.6	34.82	35.4	29.7	77.06	4.5
29.9	60.14	30.3	30.2	49.04	31.8	30.6	35.06	35.7	30.7	78.13	4.6
30.9	60.72	30.0	31.2	48.72	31.6	31.6	35.28	36.0	31.7	79.11	4.8
31.9	61.29	29.8									

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris (<i>Polaris</i>).		Mean Solar Date.	51 Cephæi (Hev.)		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
May	^h ^m 1 22	+88 46	May	^h ^m 6 53	+87 12	May	^h ^m 18 4	+86 36	May	^h ^m 19 22	+88 59
	^s	"		^s	"		^s	"		^s	"
1.9	1.29	29.8	1.2	48.72	31.6	1.6	35.28	36.0	1.7	19.11	4.8
2.9	1.83	29.5	2.2	48.42	31.4	2.6	35.49	36.2	2.7	20.05	5.0
3.9	2.34	29.3	3.2	48.11	31.2	3.6	35.68	36.5	3.7	20.94	5.2
4.9	2.79	29.0	4.2	47.83	31.0	4.6	35.90	36.7	4.7	21.85	5.3
5.9	3.21	28.8	5.2	47.52	30.8	5.6	36.11	36.9	5.7	22.78	5.5
6.9	3.61	28.5	6.2	47.22	30.6	6.6	36.34	37.1	6.7	23.77	5.6
7.9	4.04	28.3	7.1	46.90	30.5	7.6	36.58	37.3	7.7	24.79	5.7
8.9	4.54	28.0	8.1	46.54	30.3	8.6	36.83	37.6	8.6	25.86	5.9
9.9	5.07	27.7	9.1	46.20	30.1	9.6	37.09	37.8	9.6	26.98	6.0
10.9	5.67	27.4	10.1	45.84	29.9	10.6	37.34	38.1	10.6	28.10	6.2
11.9	6.36	27.1	11.1	45.48	29.7	11.6	37.58	38.4	11.6	29.18	6.4
12.9	7.09	26.8	12.1	45.14	29.4	12.6	37.81	38.7	12.6	30.22	6.7
13.9	7.87	26.6	13.1	44.84	29.2	13.6	37.99	39.0	13.6	31.18	6.9
14.9	8.66	26.4	14.1	44.56	28.9	14.6	38.15	39.4	14.6	32.06	7.2
15.9	9.41	26.2	15.1	44.31	28.6	15.6	38.28	39.7	15.6	32.85	7.4
16.9	10.15	26.0	16.1	44.09	28.4	16.6	38.42	40.0	16.6	33.57	7.7
17.9	10.86	25.8	17.1	43.89	28.1	17.6	38.54	40.2	17.6	34.28	7.9
18.9	11.51	25.6	18.1	43.68	27.9	18.6	38.66	40.5	18.6	34.97	8.1
19.9	12.13	25.4	19.1	43.47	27.7	19.6	38.81	40.8	19.6	35.69	8.3
20.9	12.76	25.2	20.1	43.25	27.5	20.6	38.95	41.0	20.6	36.44	8.5
21.9	13.41	25.0	21.1	43.02	27.2	21.6	39.10	41.3	21.6	37.25	8.7
22.9	14.10	24.8	22.1	42.77	27.0	22.6	39.26	41.6	22.6	38.09	8.9
23.9	14.86	24.6	23.1	42.52	26.8	23.6	39.41	41.9	23.6	38.95	9.2
24.9	15.69	24.4	24.1	42.26	26.5	24.6	39.56	42.2	24.6	39.81	9.4
25.9	16.57	24.2	25.1	42.02	26.2	25.6	39.70	42.5	25.6	40.64	9.7
26.9	17.52	24.0	26.1	41.80	25.9	26.6	39.81	42.9	26.6	41.40	10.0
27.9	18.47	23.8	27.1	41.60	25.6	27.6	39.90	43.2	27.6	42.09	10.3
28.9	19.43	23.7	28.1	41.41	25.3	28.6	39.98	43.6	28.6	42.71	10.6
29.9	20.35	23.5	29.1	41.28	25.0	29.6	40.03	43.9	29.6	43.26	10.9
30.9	21.24	23.4	30.1	41.15	24.7	30.6	40.07	44.2	30.6	43.76	11.2
31.9	22.07	23.3	31.1	41.04	24.4	31.6	40.11	44.5	31.6	44.25	11.4
32.9	22.87	23.2	32.1	40.92	24.1	32.6	40.17	44.8	32.6	44.73	11.7

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

α Ursæ Minoris (Polaris).			ζ Cephei (HEV.).			δ Ursæ Minoris.			λ Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
June	h m	°	June	h m	°	June	h m	°	June	h m	°
	1 22	+88 46		6 53	+87 12		18 4	+86 36		19 22	+88 59
	s	"		s	"		s	"		s	"
1.9	22.87	23.2	1.1	40.92	24.1	1.6	40.17	44.8	1.6	44.73	11.7
2.9	23.63	23.0	2.1	40.79	23.9	2.6	40.23	45.1	2.6	45.26	12.0
3.8	24.40	22.9	3.1	40.66	23.6	3.5	40.31	45.4	3.6	45.82	12.2
4.8	25.20	22.7	4.1	40.51	23.4	4.5	40.39	45.7	4.6	46.44	12.4
5.8	26.04	22.5	5.1	40.33	23.1	5.5	40.48	46.0	5.6	47.08	12.7
6.8	26.94	22.4	6.1	40.16	22.8	6.5	40.57	46.3	6.6	47.73	13.0
7.8	27.91	22.2	7.1	39.99	22.5	7.5	40.64	46.7	7.6	48.37	13.3
8.8	28.94	22.0	8.1	39.84	22.2	8.5	40.69	47.0	8.6	48.96	13.6
9.8	30.00	21.9	9.1	39.71	21.9	9.5	40.73	47.4	9.6	49.47	14.0
10.8	31.08	21.8	10.1	39.61	21.5	10.5	40.73	47.8	10.6	49.90	14.3
11.8	32.15	21.7	11.1	39.54	21.2	11.5	40.71	48.1	11.6	50.25	14.6
12.8	33.18	21.7	12.1	39.49	20.8	12.5	40.67	48.5	12.6	50.53	15.0
13.8	34.17	21.6	13.0	39.49	20.5	13.5	40.63	48.8	13.6	50.72	15.3
14.8	35.10	21.6	14.0	39.47	20.2	14.5	40.57	49.1	14.6	50.92	15.6
15.8	35.99	21.5	15.0	39.48	19.9	15.5	40.52	49.4	15.6	51.13	15.9
16.8	36.86	21.5	16.0	39.46	19.6	16.5	40.50	49.7	16.6	51.36	16.2
17.8	37.73	21.4	17.0	39.45	19.4	17.5	40.47	50.0	17.6	51.62	16.5
18.8	38.65	21.3	18.0	39.40	19.1	18.5	40.46	50.3	18.6	51.94	16.8
19.8	39.62	21.3	19.0	39.35	18.8	19.5	40.45	50.6	19.6	52.27	17.1
20.8	40.64	21.2	20.0	39.30	18.5	20.5	40.43	51.0	20.6	52.61	17.4
21.8	41.72	21.1	21.0	39.25	18.1	21.5	40.39	51.3	21.6	52.91	17.7
22.8	42.83	21.0	22.0	39.21	17.8	22.5	40.34	51.7	22.6	53.17	18.0
23.8	44.00	21.0	23.0	39.21	17.4	23.5	40.26	52.0	23.6	53.38	18.4
24.8	45.15	21.0	24.0	39.23	17.1	24.5	40.16	52.4	24.6	53.48	18.8
25.8	46.27	21.0	25.0	39.29	16.7	25.5	40.04	52.8	25.6	53.50	19.2
26.8	47.36	21.0	26.0	39.35	16.4	26.5	39.91	53.1	26.6	53.47	19.5
27.8	48.39	21.0	27.0	39.43	16.0	27.5	39.78	53.4	27.6	53.41	19.8
28.8	49.36	21.1	28.0	39.53	15.7	28.5	39.66	53.7	28.6	53.35	20.2
29.8	50.31	21.1	29.0	39.62	15.4	29.5	39.53	54.0	29.5	53.31	20.5
30.8	51.20	21.1	30.0	39.70	15.2	30.5	39.43	54.3	30.5	53.30	20.8
31.8	52.14	21.1	31.0	39.76	14.9	31.5	39.34	54.5	31.5	53.35	21.1

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

<i>α</i> Ursæ Minoris (Polaris).			51 Cephei (Hev.).			<i>δ</i> Ursæ Minoris.			<i>λ</i> Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
July	h m 1 22	+88 46	July	h m 6 53	+87 12	July	h m 18 4	+86 36	July	h m 19 22	+88 59
	s	"		s	"		s	"		s	"
1.8	52.14	21.1	1.0	39.76	14.9	1.5	39.34	54.5	1.5	53.35	21.1
2.8	53.10	21.0	2.0	39.80	14.6	2.5	39.25	54.8	2.5	53.43	21.4
3.8	54.10	21.0	3.0	39.85	14.3	3.5	39.17	55.2	3.5	53.52	21.7
4.8	55.17	21.0	3.9	39.88	14.0	4.5	39.06	55.5	4.5	53.61	22.0
5.8	56.29	21.0	4.9	39.93	13.6	5.5	38.96	55.8	5.5	53.66	22.4
6.8	57.46	21.0	5.9	40.00	13.3	6.5	38.82	56.2	6.5	53.65	22.7
7.8	58.63	21.1	6.9	40.10	12.9	7.5	38.67	56.5	7.5	53.54	23.1
8.8	59.80	21.1	7.9	40.24	12.5	8.5	38.49	56.9	8.5	53.34	23.5
9.8	60.94	21.2	8.9	40.39	12.2	9.5	38.28	57.2	9.5	53.09	23.9
10.7	62.01	21.3	9.9	40.57	11.9	10.5	38.06	57.5	10.5	52.74	24.2
11.7	63.04	21.4	10.9	40.77	11.5	11.5	37.85	57.8	11.5	52.38	24.5
12.7	64.02	21.5	11.9	40.98	11.2	12.4	37.63	58.1	12.5	52.02	24.9
13.7	64.94	21.6	12.9	41.17	11.0	13.4	37.43	58.3	13.5	51.67	25.2
14.7	65.87	21.7	13.9	41.36	10.7	14.4	37.23	58.6	14.5	51.34	25.5
15.7	66.82	21.8	14.9	41.53	10.4	15.4	37.05	58.8	15.5	51.06	25.8
16.7	67.78	21.8	15.9	41.69	10.1	16.4	36.86	59.1	16.5	50.81	26.1
17.7	68.81	21.9	16.9	41.82	9.8	17.4	36.67	59.4	17.5	50.58	26.4
18.7	69.90	22.0	17.9	41.98	9.5	18.4	36.49	59.7	18.5	50.35	26.7
19.7	71.02	22.1	18.9	42.15	9.2	19.4	36.28	60.0	19.5	50.06	27.1
20.7	72.19	22.2	19.9	42.34	8.8	20.4	36.06	60.3	20.5	49.71	27.5
21.7	73.35	22.3	20.9	42.55	8.5	21.4	35.81	60.7	21.5	49.29	27.8
22.7	74.47	22.4	21.9	42.79	8.2	22.4	35.53	61.0	22.5	48.78	28.2
23.7	75.56	22.6	22.9	43.06	7.8	23.4	35.25	61.3	23.5	48.19	28.5
24.7	76.60	22.7	23.9	43.33	7.5	24.4	34.96	61.5	24.5	47.59	28.9
25.7	77.57	22.9	24.9	43.61	7.2	25.4	34.68	61.8	25.5	46.95	29.2
26.7	78.48	23.1	25.9	43.91	7.0	26.4	34.40	62.0	26.5	46.34	29.5
27.7	79.38	23.2	26.9	44.18	6.7	27.4	34.13	62.2	27.5	45.76	29.8
28.7	80.24	23.4	27.9	44.45	6.4	28.4	33.89	62.4	28.5	45.22	30.1
29.7	81.13	23.5	28.9	44.69	6.2	29.4	33.65	62.7	29.5	44.73	30.4
30.7	82.06	23.6	29.9	44.92	5.9	30.4	33.42	62.9	30.5	44.26	30.6
31.7	83.04	23.8	30.9	45.15	5.6	31.4	33.19	63.2	31.5	43.81	31.0
32.7	84.07	23.9	31.9	45.39	5.3	32.4	32.93	63.4	32.5	43.34	31.3

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris (Polaris).		Mean Solar Date.	51 Cephei (HEV.).		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Aug.	^h ^m 1 23	[°] ['] +88 46	Aug.	^h ^m 6 53	[°] ['] +87 11	Aug.	^h ^m 18 4	[°] ['] +86 37	Aug.	^h ^m 19 22	[°] ['] +88 59
	^s "	"		^s "	"		^s "	"		^s "	"
1.7	24.07	23.9	1.9	45.64	65.0	1.4	32.93	3.4	1.5	43.34	31.3
2.7	25.14	24.0	2.9	45.91	64.7	2.4	32.66	3.7	2.4	42.82	31.6
3.7	26.22	24.2	3.9	46.20	64.4	3.4	32.38	4.0	3.4	42.20	32.0
4.7	27.32	24.4	4.9	46.54	64.1	4.4	32.04	4.3	4.4	41.53	32.3
5.7	28.37	24.6	5.9	46.88	63.8	5.4	31.71	4.5	5.4	40.75	32.6
6.7	29.36	24.8	6.9	47.26	63.5	6.4	31.36	4.8	6.4	39.91	33.0
7.7	30.32	25.1	7.9	47.65	63.3	7.4	31.00	5.0	7.4	39.01	33.3
8.7	31.21	25.3	8.9	48.03	63.0	8.4	30.65	5.2	8.4	38.12	33.6
9.7	32.05	25.5	9.9	48.43	62.8	9.4	30.30	5.3	9.4	37.24	33.8
10.7	32.84	25.8	10.9	48.74	62.6	10.4	29.97	5.5	10.4	36.38	34.1
11.7	33.66	26.0	11.9	49.07	62.4	11.4	29.65	5.7	11.4	35.57	34.4
12.7	34.49	26.2	12.9	49.41	62.1	12.4	29.35	5.9	12.4	34.80	34.6
13.7	35.33	26.4	13.9	49.73	61.9	13.4	29.05	6.0	13.4	34.06	34.9
14.7	36.26	26.6	14.9	50.06	61.6	14.4	28.73	6.2	14.4	33.33	35.2
15.6	37.23	26.8	15.9	50.41	61.4	15.4	28.40	6.5	15.4	32.55	35.5
16.6	38.22	27.0	16.9	50.78	61.1	16.3	28.06	6.7	16.4	31.74	35.8
17.6	39.23	27.2	17.9	51.17	60.8	17.3	27.69	6.9	17.4	30.84	36.1
18.6	40.22	27.5	18.9	51.58	60.5	18.3	27.31	7.1	18.4	29.87	36.4
19.6	41.15	27.8	19.9	52.02	60.3	19.3	26.91	7.3	19.4	28.83	36.7
20.6	42.04	28.1	20.9	52.48	60.0	20.3	26.50	7.5	20.4	27.73	37.0
21.6	42.85	28.4	21.9	52.92	59.8	21.3	26.10	7.7	21.4	26.62	37.3
22.6	43.59	28.7	22.9	53.35	59.6	22.3	25.70	7.8	22.4	25.52	37.5
23.6	44.29	29.0	23.9	53.79	59.4	23.3	25.32	7.9	23.4	24.45	37.8
24.6	44.97	29.2	24.8	54.19	59.3	24.3	24.95	8.0	24.4	23.42	38.0
25.6	45.65	29.5	25.8	54.57	59.1	25.3	24.60	8.1	25.4	22.44	38.2
26.6	46.35	29.7	26.8	54.95	58.9	26.3	24.26	8.3	26.4	21.52	38.4
27.6	47.09	30.0	27.8	55.32	58.7	27.3	23.91	8.4	27.4	20.61	38.6
28.6	47.89	30.2	28.8	55.69	58.5	28.3	23.57	8.6	28.4	19.69	38.9
29.6	48.72	30.5	29.8	56.10	58.2	29.3	23.21	8.7	29.4	18.74	39.1
30.6	49.59	30.7	30.8	56.53	58.0	30.3	22.83	8.9	30.4	17.73	39.4
31.6	50.45	31.0	31.8	56.98	57.8	31.3	22.43	9.1	31.4	16.65	39.7
32.6	51.29	31.4	32.8	57.46	57.6	32.3	22.00	9.2	32.4	15.48	40.0

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris (Polaris).		Mean Solar Date.	51 Cephei (HEV.).		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Sept.	h m 1 23	+88 46	Sept.	h m 6 53	+87 11	Sept.	h m 18 4	+86 37	Sept.	h m 19 21	+88 59
	s	"		s	"		s	"		s	"
1.6	51.29	31.4	1.8	57.46	57.6	1.3	22.00	9.2	1.4	75.48	40.0
2.6	52.07	31.7	2.8	57.94	57.4	2.3	21.57	9.4	2.4	74.23	40.2
3.6	52.79	32.0	3.8	58.46	57.2	3.3	21.12	9.5	3.4	72.97	40.4
4.6	53.46	32.4	4.8	58.97	57.0	4.3	20.68	9.6	4.4	71.65	40.6
5.6	54.06	32.7	5.8	59.46	56.9	5.3	20.26	9.6	5.4	70.35	40.8
6.6	54.61	33.0	6.8	59.95	56.8	6.3	19.83	9.7	6.4	69.10	41.0
7.6	55.16	33.4	7.8	60.42	56.6	7.3	19.43	9.7	7.4	67.87	41.2
8.6	55.70	33.7	8.8	60.86	56.5	8.3	19.04	9.8	8.4	66.69	41.4
9.6	56.29	34.0	9.8	61.30	56.4	9.3	18.65	9.9	9.4	65.55	41.5
10.6	56.90	34.3	10.8	61.74	56.2	10.3	18.26	10.0	10.3	64.42	41.7
11.6	57.57	34.6	11.8	62.20	56.0	11.3	17.89	10.1	11.3	63.31	41.9
12.6	58.26	34.9	12.8	62.65	55.8	12.3	17.48	10.2	12.3	62.14	42.1
13.6	58.96	35.2	13.8	63.15	55.7	13.3	17.07	10.3	13.3	60.90	42.4
14.6	59.68	35.5	14.8	63.67	55.5	14.3	16.62	10.4	14.3	59.61	42.6
15.6	60.34	35.9	15.8	64.21	55.4	15.3	16.16	10.4	15.3	58.26	42.8
16.6	60.95	36.3	16.8	64.75	55.2	16.3	15.70	10.5	16.3	56.82	43.0
17.6	61.50	36.6	17.8	65.30	55.1	17.3	15.23	10.5	17.3	55.38	43.2
18.6	61.96	37.0	18.8	65.83	55.0	18.3	14.77	10.6	18.3	53.94	43.3
19.6	62.36	37.4	19.8	66.36	54.9	19.3	14.33	10.6	19.3	52.53	43.4
20.6	62.72	37.8	20.8	66.87	54.9	20.3	13.91	10.5	20.3	51.17	43.6
21.5	63.08	38.1	21.8	67.33	54.8	21.3	13.51	10.5	21.3	49.86	43.7
22.5	63.46	38.4	22.8	67.80	54.7	22.2	13.11	10.5	22.3	48.62	43.8
23.5	63.85	38.7	23.8	68.26	54.6	23.2	12.75	10.5	23.3	47.42	43.9
24.5	64.29	39.0	24.8	68.71	54.5	24.2	12.37	10.6	24.3	46.22	44.0
25.5	64.78	39.4	25.8	69.18	54.4	25.2	11.96	10.6	25.3	45.00	44.2
26.5	65.29	39.7	26.8	69.67	54.3	26.2	11.56	10.6	26.3	43.75	44.4
27.5	65.82	40.0	27.8	70.19	54.2	27.2	11.13	10.7	27.3	42.43	44.5
28.5	66.32	40.4	28.8	70.74	54.1	28.2	10.69	10.7	28.3	41.03	44.7
29.5	66.76	40.8	29.8	71.29	54.0	29.2	10.23	10.7	29.3	39.56	44.8
30.5	67.16	41.2	30.8	71.86	53.9	30.2	9.75	10.7	30.3	38.04	44.9
31.5	67.48	41.6	31.7	72.45	53.9	31.2	9.29	10.6	31.3	36.49	45.0

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

<i>α</i> Ursæ Minoris (Polaris).			51 Cephei (Hev.)			<i>δ</i> Ursæ Minoris.			<i>λ</i> Ursæ Minoris.		
Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.	Mean Solar Date.	Right Ascen- sion.	Declina- tion North.
Oct.	h m	°	Oct.	h m	°	Oct.	h m	°	Oct.	h m	°
	1 24	+88 46		6 54	+87 11		18 3	+86 37		19 20	+88 59
	s	"		s	"		s	"		s	"
1.5	7.48	41.6	1.7	12.45	53.9	1.2	69.29	10.6	1.3	96.49	45.0
2.5	7.74	42.0	2.7	13.00	53.9	2.2	68.83	10.6	2.3	94.98	45.1
3.5	7.95	42.4	3.7	13.54	53.8	3.2	68.38	10.5	3.3	93.46	45.2
4.5	8.12	42.8	4.7	14.06	53.8	4.2	67.97	10.4	4.3	92.00	45.2
5.5	8.30	43.1	5.7	14.59	53.8	5.2	67.56	10.4	5.3	90.60	45.3
6.5	8.49	43.5	6.7	15.07	53.8	6.2	67.17	10.3	6.3	89.26	45.3
7.5	8.71	43.8	7.7	15.55	53.8	7.2	66.77	10.2	7.3	87.94	45.4
8.5	8.98	44.2	8.7	16.04	53.8	8.2	66.37	10.2	8.3	86.64	45.4
9.5	9.29	44.5	9.7	16.54	53.7	9.2	65.99	10.2	9.3	85.30	45.5
10.5	9.62	44.9	10.7	17.07	53.6	10.2	65.56	10.1	10.3	83.94	45.6
11.5	9.93	45.3	11.7	17.61	53.6	11.2	65.14	10.1	11.3	82.51	45.7
12.5	10.24	45.7	12.7	18.15	53.6	12.2	64.69	10.0	12.3	81.03	45.8
13.5	10.46	46.1	13.7	18.73	53.5	13.2	64.24	10.0	13.3	79.49	45.9
14.5	10.63	46.5	14.7	19.32	53.6	14.2	63.79	9.9	14.3	77.91	45.9
15.5	10.73	46.9	15.7	19.87	53.6	15.2	63.34	9.8	15.3	76.34	46.0
16.5	10.76	47.3	16.7	20.43	53.6	16.2	62.91	9.6	16.2	74.80	46.0
17.5	10.74	47.7	17.7	20.96	53.7	17.2	62.50	9.5	17.2	73.29	46.0
18.5	10.69	48.1	18.7	21.47	53.8	18.2	62.11	9.3	18.2	71.85	46.0
19.5	10.64	48.4	19.7	21.95	53.8	19.2	61.74	9.2	19.2	70.49	45.9
20.5	10.60	48.8	20.7	22.42	53.9	20.2	61.38	9.1	20.2	69.17	45.9
21.5	10.62	49.1	21.7	22.88	53.9	21.2	61.03	9.0	21.2	67.90	45.9
22.5	10.67	49.4	22.7	23.33	53.9	22.2	60.68	8.8	22.2	66.64	45.9
23.5	10.75	49.8	23.7	23.82	53.9	23.2	60.32	8.7	23.2	65.34	45.9
24.5	10.86	50.1	24.7	24.31	53.9	24.2	59.94	8.6	24.2	63.99	45.9
25.5	10.94	50.5	25.7	24.85	54.0	25.2	59.56	8.5	25.2	62.58	45.9
26.5	11.00	50.9	26.7	25.39	54.0	26.2	59.14	8.4	26.2	61.11	46.0
27.5	11.00	51.3	27.7	25.94	54.0	27.2	58.72	8.3	27.2	59.59	46.0
28.4	10.93	51.7	28.7	26.49	54.1	28.1	58.30	8.1	28.2	58.02	45.9
29.4	10.77	52.1	29.7	27.05	54.2	29.1	57.88	7.9	29.2	56.47	45.9
30.4	10.58	52.5	30.7	27.56	54.4	30.1	57.49	7.7	30.2	54.96	45.8
31.4	10.31	52.9	31.7	28.08	54.5	31.1	57.11	7.5	31.2	53.50	45.8
32.4	10.06	53.2	32.7	28.56	54.6	32.1	56.77	7.3	32.2	52.09	45.7

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Ursæ Minoris (<i>Polaris</i>).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	<i>δ</i> Ursæ Minoris.		Mean Solar Date.	<i>λ</i> Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Nov.	h m 1 23	+88 46	Nov.	h m 6 54	+87 11	Nov.	h m 18 3	+86 37	Nov.	h m 19 20	+88 59
	s	"		s	"		s	"		s	"
1.4	70.06	53.2	1.7	28.56	54.6	1.1	56.77	7.3	1.2	52.09	45.7
2.4	69.80	53.6	2.7	29.02	54.7	2.1	56.43	7.1	2.2	50.78	45.6
3.4	69.58	53.9	3.7	29.47	54.8	3.1	56.09	6.9	3.2	49.49	45.5
4.4	69.38	54.3	4.7	29.91	55.0	4.1	55.78	6.7	4.2	48.23	45.4
5.4	69.24	54.6	5.7	30.36	55.0	5.1	55.44	6.6	5.2	46.97	45.3
6.4	69.11	54.9	6.6	30.84	55.1	6.1	55.11	6.4	6.2	45.69	45.3
7.4	68.99	55.3	7.6	31.32	55.2	7.1	54.77	6.2	7.2	44.36	45.2
8.4	68.87	55.7	8.6	31.83	55.3	8.1	54.39	6.0	8.2	42.99	45.2
9.4	68.67	56.0	9.6	32.32	55.4	9.1	54.03	5.8	9.2	41.56	45.1
10.4	68.44	56.4	10.6	32.85	55.5	10.1	53.67	5.6	10.2	40.11	45.0
11.4	68.12	56.8	11.6	33.35	55.7	11.1	53.30	5.4	11.2	38.64	44.9
12.4	67.73	57.2	12.6	33.85	55.8	12.1	52.95	5.2	12.2	37.21	44.8
13.4	67.28	57.6	13.6	34.32	56.0	13.1	52.61	4.9	13.2	35.84	44.6
14.4	66.77	57.9	14.6	34.77	56.2	14.1	52.31	4.6	14.2	34.53	44.5
15.4	66.27	58.2	15.6	35.18	56.4	15.1	52.03	4.4	15.2	33.29	44.3
16.4	65.80	58.5	16.6	35.57	56.6	16.1	51.77	4.1	16.2	32.12	44.2
17.4	65.34	58.8	17.6	35.95	56.8	17.1	51.53	3.8	17.2	31.01	44.0
18.4	64.94	59.1	18.6	36.32	56.9	18.1	51.27	3.6	18.2	29.91	43.8
19.4	64.59	59.4	19.6	36.71	57.1	19.1	51.02	3.4	19.2	28.82	43.7
20.4	64.23	59.7	20.6	37.12	57.2	20.1	50.76	3.2	20.1	27.69	43.6
21.4	63.89	60.0	21.6	37.54	57.4	21.1	50.47	3.0	21.1	26.54	43.5
22.4	63.51	60.3	22.6	37.98	57.5	22.1	50.19	2.7	22.1	25.31	43.4
23.4	63.10	60.7	23.6	38.42	57.7	23.1	49.89	2.5	23.1	24.04	43.2
24.4	62.62	61.0	24.6	38.87	57.9	24.1	49.60	2.2	24.1	22.74	43.1
25.4	62.06	61.4	25.6	39.33	58.1	25.1	49.31	1.9	25.1	21.44	42.9
26.4	61.43	61.7	26.6	39.75	58.4	26.1	49.03	1.6	26.1	20.18	42.7
27.4	60.77	62.0	27.6	40.15	58.6	27.1	48.78	1.3	27.1	18.96	42.5
28.4	60.07	62.3	28.6	40.53	58.9	28.1	48.54	1.0	28.1	17.82	42.2
29.4	59.38	62.6	29.6	40.89	59.1	29.1	48.35	0.7	29.1	16.75	42.0
30.4	58.70	62.8	30.6	41.20	59.4	30.1	48.14	0.4	30.1	15.77	41.8
31.4	58.07	63.1	31.6	41.52	59.6	31.1	47.96	0.1	31.1	14.81	41.6

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris (Polaris).		Mean Solar Date.	γ Cephei (HEV.)		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.		Right Ascen- sion.	Declina- tion North.
Dec.	^h ^m 1 23	[°] ['] +88 47	Dec.	^h ^m 6 54	[°] ['] +87 11	Dec.	^h ^m 18 3	[°] ['] +86 36	Dec.	^h ^m 19 19	[°] ['] +88 59
	^s	"		^s	"		^s	"		^s	"
1.4	58.07	3.1	1.6	41.52	59.6	1.1	47.96	60.1	1.1	74.81	41.6
2.4	57.49	3.4	2.6	41.85	59.8	2.1	47.79	59.8	2.1	73.89	41.4
3.3	56.94	3.6	3.6	42.17	60.0	3.1	47.59	59.5	3.1	72.95	41.2
4.3	56.39	3.9	4.6	42.51	60.2	4.0	47.39	59.3	4.1	71.99	41.0
5.3	55.85	4.1	5.6	42.86	60.4	5.0	47.18	59.0	5.1	70.99	40.8
6.3	55.27	4.4	6.6	43.22	60.6	6.0	46.96	58.7	6.1	69.93	40.6
7.3	54.65	4.7	7.6	43.60	60.9	7.0	46.74	58.4	7.1	68.84	40.4
8.3	53.95	5.0	8.6	43.96	61.1	8.0	46.52	58.1	8.1	67.75	40.2
9.3	53.18	5.3	9.6	44.31	61.4	9.0	46.33	57.8	9.1	66.68	39.9
10.3	52.36	5.6	10.6	44.62	61.7	10.0	46.14	57.4	10.1	65.68	39.7
11.3	51.48	5.8	11.6	44.92	62.0	11.0	46.00	57.1	11.1	64.74	39.4
12.3	50.59	6.0	12.5	45.18	62.3	12.0	45.88	56.7	12.1	63.89	39.1
13.3	49.72	6.2	13.5	45.41	62.6	13.0	45.78	56.4	13.1	63.13	38.8
14.3	48.87	6.4	14.5	45.62	62.9	14.0	45.68	56.1	14.1	62.43	38.5
15.3	48.07	6.6	15.5	45.83	63.2	15.0	45.61	55.8	15.1	61.78	38.2
16.3	47.30	6.7	16.5	46.04	63.4	16.0	45.53	55.4	16.1	61.14	38.0
17.3	46.58	6.9	17.5	46.25	63.7	17.0	45.44	55.1	17.1	60.50	37.8
18.3	45.87	7.1	18.5	46.46	63.9	18.0	45.34	54.9	18.1	59.83	37.5
19.3	45.16	7.3	19.5	46.72	64.1	19.0	45.23	54.6	19.1	59.11	37.3
20.3	44.40	7.5	20.5	46.98	64.4	20.0	45.12	54.3	20.1	58.33	37.0
21.3	43.59	7.7	21.5	47.24	64.7	21.0	44.99	53.9	21.1	57.53	36.8
22.3	42.74	8.0	22.5	47.49	65.0	22.0	44.89	53.6	22.1	56.73	36.5
23.3	41.80	8.2	23.5	47.73	65.3	23.0	44.79	53.3	23.1	55.97	36.2
24.3	40.81	8.4	24.5	47.95	65.7	24.0	44.70	52.9	24.1	55.24	35.9
25.3	39.79	8.5	25.5	48.13	66.0	25.0	44.64	52.5	25.1	54.59	35.6
26.3	38.77	8.7	26.5	48.28	66.3	26.0	44.61	52.1	26.0	54.02	35.2
27.3	37.79	8.8	27.5	48.42	66.6	27.0	44.60	51.8	27.0	53.53	34.9
28.3	36.85	8.9	28.5	48.53	67.0	28.0	44.61	51.4	28.0	53.11	34.6
29.3	35.97	9.0	29.5	48.64	67.2	28.9	44.61	51.1	29.0	52.72	34.3
30.3	35.13	9.1	30.5	48.74	67.5	29.9	44.62	50.8	30.0	52.32	34.0
31.3	34.31	9.2	31.5	48.85	67.8	30.9	44.61	50.5	31.0	51.90	33.7
32.3	33.49	9.3	32.5	48.99	68.1	31.9	44.59	50.2	32.0	51.46	33.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	12 Ceti.		43 Cephei (H.).		μ Hydr.		47 Cephei (H.).		ι Hydr.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m 0 24	° ' " 4 30	h m 0 54	° ' " +85 43	h m 2 33	° ' " -79 32	h m 2 52	° ' " +79 1	h m 3 18	° ' " -77 44
	s	"	s	"	s	"	s	"	s	"
Jan. 0.3	57.12	31.7	67.31	41.2	49.49	58.2	53.93	45.0	29.81	86.1
10.3	57.01	32.3	64.57	41.6	48.31	59.2	53.15	46.7	28.87	87.7
20.3	56.90	32.9	61.82	41.4	47.06	59.5	52.25	47.9	27.85	88.7
30.2	56.80	33.3	59.16	40.5	45.79	59.2	51.27	48.5	26.77	89.2
Feb. 9.2	56.71	33.6	56.71	39.0	44.53	58.3	50.24	48.5	25.66	89.0
19.2	56.64	33.7	54.57	37.0	43.32	56.9	49.22	47.9	24.55	88.3
Mar. 1.1	56.59	33.6	52.81	34.5	42.17	54.9	48.24	46.7	23.48	87.1
11.1	56.57	33.3	51.52	31.7	41.13	52.5	47.36	44.9	22.46	85.3
21.1	56.58	32.8	50.74	28.7	40.22	49.7	46.61	42.8	21.53	83.1
31.1	56.63	32.0	50.51	25.6	39.46	46.6	46.02	40.3	20.70	80.4
Apr. 10.0	56.72	31.0	50.84	22.5	38.86	43.2	45.63	37.5	20.01	77.4
20.0	56.85	29.7	51.70	19.5	38.44	39.7	45.44	34.6	19.46	74.2
30.0	57.02	28.3	53.07	16.8	38.21	36.0	45.47	31.7	19.06	70.8
May 9.9	57.23	26.6	54.90	14.4	38.18	32.3	45.72	28.8	18.83	67.2
19.9	57.47	24.8	57.12	12.4	38.35	28.7	46.19	26.1	18.73	63.6
29.9	57.74	22.8	59.67	11.0	38.71	25.3	46.84	23.7	18.90	60.1
June 8.9	58.03	20.8	62.46	10.0	39.25	22.1	47.68	21.6	19.19	56.7
18.8	58.34	18.8	65.41	9.6	39.96	19.2	48.66	19.9	19.65	53.5
28.8	58.65	16.7	68.44	9.8	40.83	16.7	49.77	18.6	20.25	50.6
July 8.8	58.96	14.8	71.48	10.5	41.82	14.6	50.98	17.8	20.99	48.1
18.8	59.26	13.0	74.45	11.7	42.90	13.0	52.25	17.5	21.83	46.0
28.7	59.54	11.3	77.29	13.4	44.05	12.0	53.56	17.7	22.77	44.4
Aug. 7.7	59.80	9.9	79.94	15.7	45.23	11.6	54.88	18.3	23.76	43.4
17.7	60.02	8.7	82.33	18.3	46.40	11.8	56.19	19.5	24.78	43.0
27.7	60.22	7.8	84.43	21.2	47.52	12.6	57.45	21.0	25.79	43.2
Sept. 6.6	60.38	7.2	86.20	24.5	48.56	14.0	58.65	23.0	26.77	44.1
16.6	60.50	6.8	87.59	28.0	49.48	15.9	59.76	25.3	27.67	45.5
26.6	60.58	6.7	88.59	31.7	50.25	18.3	60.76	28.0	28.48	47.5
Oct. 6.5	60.63	6.8	89.16	35.5	50.84	21.1	61.64	30.9	29.15	49.9
16.5	60.64	7.2	89.30	39.3	51.23	24.2	62.38	34.0	29.68	52.8
26.5	60.62	7.7	88.99	42.9	51.40	27.5	62.96	37.3	30.03	56.0
Nov. 5.5	60.58	8.4	88.24	46.5	51.35	30.8	63.37	40.7	30.19	59.3
15.4	60.52	9.1	87.06	49.7	51.07	34.1	63.59	44.0	30.17	62.7
25.4	60.44	9.9	85.46	52.7	50.58	37.2	63.62	47.3	29.95	66.1
Dec. 5.4	60.34	10.8	83.50	55.2	49.89	39.9	63.46	50.4	29.54	69.2
15.3	60.23	11.6	81.21	57.2	49.03	42.3	63.11	53.2	28.96	72.1
25.3	60.12	12.4	78.68	58.6	48.02	44.1	62.58	55.7	28.23	74.5
35.3	60.00	13.1	75.97	59.4	46.89	45.4	61.88	57.7	27.37	76.4

FIXED STARS, 1900.

(CONSTANTS OF STRUVE AND PETERS.)

625

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Hydri.		δ Mensæ.		Groombridge 966.		Groombridge 944.		δ Doradus.					
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.				
	h m 3 48	° -74 32	h m + 24	° -80 26	h m 5 26	° +74 58	h m 5 29	° +85 8	h m 5 44	° -65 46				
	s	"	s	"	s	"	s	"	s	"				
Jan. 0.4	50.20	.67	55.4	2.1	48.85	63.9	28.85	44.5	76.44	54.2	38.83	.19	29.5	3.3
10.4	49.53	.76	57.5	1.5	47.83	66.3	28.77	47.2	76.01	57.2	38.64	.28	32.8	3.1
20.4	48.77	.82	59.0	1.0	46.65	68.3	28.52	49.7	75.09	60.0	38.36	.36	35.9	2.6
30.4	47.95	.87	60.0	0.4	45.33	69.8	28.11	51.8	73.71	62.5	38.00	.44	38.5	2.2
Feb. 9.3	47.08	.89	60.4	0.2	43.91	70.7	27.58	53.6	71.95	64.5	37.56	.50	40.7	1.7
19.3	46.19	.88	60.2	0.7	42.43	71.0	26.94	54.9	69.87	66.0	37.06	.55	42.4	1.2
Mar. 1.3	45.31	.85	59.5	1.3	40.94	70.8	26.22	55.7	67.57	67.0	36.51	.56	43.6	0.6
11.2	44.46	.80	58.2	1.8	39.46	70.0	25.47	55.9	65.14	67.4	35.95	.58	44.2	0.1
21.2	43.66	.73	56.4	2.3	38.04	68.7	24.71	55.6	62.71	67.1	35.37	.56	44.3	0.5
31.2	42.93	.63	54.1	2.6	36.71	67.0	23.98	54.8	60.36	66.3	34.81	.54	43.8	1.0
Apr. 10.2	42.30	.53	51.5	3.0	35.51	64.8	23.31	53.5	58.19	64.9	34.27	.49	42.8	1.5
20.1	41.77	.40	48.5	3.2	34.45	62.2	22.74	51.7	56.29	63.0	33.78	.44	41.3	1.9
30.1	41.37	.27	45.3	3.4	33.57	59.4	22.29	49.6	54.73	60.7	33.34	.37	39.4	2.4
May 10.1	41.10	.14	41.9	3.5	32.88	56.3	21.97	47.2	53.57	58.1	32.97	.30	37.0	2.7
20.1	40.96	.01	38.4	3.5	32.40	53.0	21.80	44.6	52.84	55.2	32.67	.21	34.3	2.9
30.0	40.97	.15	34.9	3.5	32.15	49.6	21.78	41.8	52.57	52.2	32.46	.12	31.4	3.2
June 9.0	41.12	.28	31.4	3.4	32.11	46.2	21.92	39.1	52.77	49.1	32.34	.03	28.2	3.3
19.0	41.40	.41	28.0	3.1	32.30	42.9	22.21	36.4	53.41	46.1	32.31	.06	24.9	3.4
28.9	41.81	.53	24.9	2.8	32.71	39.7	22.64	33.8	54.50	43.2	32.37	.16	21.5	3.3
July 8.9	42.34	.63	22.1	2.4	33.32	36.7	23.20	31.5	56.00	40.5	32.53	.23	18.2	3.1
18.9	42.97	.71	19.7	1.9	34.13	34.1	23.88	29.3	57.87	38.0	32.76	.32	15.1	2.9
28.9	43.68	.78	17.8	1.4	35.09	31.9	24.66	27.5	60.06	35.9	33.08	.39	12.2	2.6
Aug. 7.8	44.46	.81	16.4	0.8	36.20	30.2	25.53	26.0	62.53	34.1	33.47	.46	9.6	2.2
17.8	45.27	.83	15.6	0.2	37.40	29.0	26.46	24.8	65.23	32.7	33.93	.50	7.4	1.6
27.8	46.10	.81	15.4	0.4	38.67	28.4	27.45	24.1	68.10	31.7	34.43	.54	5.8	1.1
Sept. 6.8	46.91	.78	15.8	1.0	39.96	28.4	28.47	23.7	71.09	31.2	34.97	.56	4.7	0.4
16.7	47.69	.72	16.8	1.6	41.22	29.0	29.50	23.7	74.14	31.1	35.53	.56	4.3	0.2
26.7	48.41	.62	18.4	2.2	42.43	30.3	30.53	24.1	77.20	31.4	36.09	.56	4.5	0.8
Oct. 6.7	49.03	.52	20.6	2.6	43.52	32.1	31.54	25.0	80.20	32.2	36.65	.53	5.3	1.5
16.6	49.55	.40	23.2	3.1		34.5	32.52	26.2	83.07	33.5	37.18	.49	6.8	2.1
					44.47	.77								
26.6	49.95	.25	26.3	3.3	45.24	37.2	33.43	27.8	85.77	35.2	37.67	.43	8.9	2.6
Nov. 5.6	50.20	.11	29.6	3.4	45.79	40.4	34.26	29.7	88.22	37.3	38.10	.36	11.5	3.1
15.6	50.31	.05	33.0	3.5	46.10	43.7	35.00	31.9	90.36	39.7	38.46	.27	14.6	3.4
25.5	50.26	.20	36.5	3.3	46.17	47.2	35.63	34.4	92.13	42.5	38.73	.18	18.0	3.5
Dec. 5.5	50.06	.34	39.8	3.2	45.99	50.6	36.11	37.0	93.48	45.5	38.91	.08	21.5	3.7
15.5	49.72	.48	43.0	2.8	45.55	53.9	36.45	39.8	94.36	48.6	38.99	.02	25.2	3.7
25.5	49.24	.60	45.8	2.4	44.88	57.0	36.63	42.7	94.74	51.8	38.97	.13	28.9	3.5
35.4	48.64		48.2		43.49	59.7	36.64	45.5	94.62	54.9	38.84		32.4	

FIXED STARS, 1900.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	♌ Mensæ.		♊ Volantis.		25 Camelop. (H.).		♐ Chamæleontis.		♐ Argus.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 6 48	° ' " -80 42	h m 7 9	° ' " -70 20	h m 7 10	° ' " +82 35	h m 8 23	° ' " -77 9	h m 9 12	° ' " -69 18
	s	"	s	"	s	"	s	"	s	"
Jan. 0.6	20.28	32.1	39.72	13.2	18.29	68.9	43.92	40.2	9.79	14.3
10.5	28.99 .29	35.7 3.6	39.71 .01	17.0 3.8	18.76 .47	71.9 3.0	44.19 .27	44.0 3.8	10.14 .35	18.0 3.7
20.5	28.45 .54	39.2 3.5	39.57 .14	20.7 3.7	18.89 .13	74.9 3.0	44.27 .08	47.9 3.9	10.37 .23	21.8 3.8
30.5	27.67 .78	42.5 3.3	39.31 .26	24.2 3.5	18.67 .22	77.8 2.9	44.16 .11	51.8 3.9	10.49 .12	25.8 4.0
Feb. 9.4	26.69 .98	45.4 2.9	38.94 .37	27.4 3.2	18.11 .56	80.5 2.7	43.87 .29	55.5 3.7	10.48 .01	29.7 3.9
	1.17	2.5	.47	2.8	0.86	2.5	.46	3.6	.11	3.8
19.4	25.52	47.9	38.47	30.2	17.25	83.0	43.41	59.1	10.37	33.5
Mar. 1.4	24.21 1.31	50.0 2.1	37.92 .55	32.6 2.4	16 13 1.12	85.1 2.1	42.80 .61	62.3 3.2	10.15 .22	37.1 3.6
11.4	22.79 1.42	51.6 1.6	37.30 .62	34.5 1.9	14.80 1.33	86.7 1.6	42.07 .73	65.2 2.9	9.84 .31	40.3 3.2
21.3	21.30 1.49	52.7 1.1	36.64 .66	35.9 1.4	13.31 1.49	87.8 1.1	41.23 .84	67.7 2.5	9.44 .40	43.3 3.0
31.3	19.78 1.52	53.3 0.6	35.96 .68	36.8 0.9	11.75 1.56	88.3 0.5	40.31 .92	69.7 2.0	8.98 .46	45.8 2.5
	1.51	0.0	.69	0.3	1.58	0.0	0.98	1.5	.51	2.1
Apr. 10.3	18.27	53.3	35.27	37.1	10.17	88.3	39.33	71.2	8.47	47.9
20.3	16.80 1.47	52.9 0.4	34.59 .68	36.9 0.2	8.64 1.53	87.7 0.6	38.33 1.00	72.2 1.0	7.92 .55	49.4 1.5
30.2	15.41 1.39	51.9 1.0	33.95 .64	36.1 0.8	7.22 1.42	86.5 1.2	37.32 1.01	72.7 0.5	7.36 .56	50.5 1.1
May 10.2	14.13 1.28	50.5 1.4	33.36 .59	34.9 1.2	5.97 1.25	84.8 1.7	36.34 0.98	72.6 0.1	6.79 .57	51.0 0.5
20.2	12.98 1.15	48.6 1.9	32.83 .53	33.2 1.7	4.92 1.05	82.7 2.1	35.40 .94	72.0 0.6	6.23 .56	51.0 0.0
	0.98	2.3	.45	2.1	0.81	2.4	.88	1.1	.53	0.6
30.1	12.00	46.3	32.38	31.1	4.11	80.3	34.52	70.9	5.70	50.4
June 9.1	11.21 .79	43.7 2.6	32.02 .36	28.6 2.5	3.57 .54	77.5 2.8	33.73 .79	69.4 1.5	5.20 .50	49.4 1.0
19.1	10.63 .58	40.9 2.8	31.75 .27	25.8 2.8	3.31 .26	74.6 2.9	33.06 .67	67.4 2.0	4.76 .44	47.8 1.6
29.0	10.26 .37	37.8 3.1	31.58 .17	22.8 3.0	3.33 .02	71.5 3.1	32.50 .56	65.0 2.4	4.38 .38	45.8 2.0
July 9.0	10.12 .14	34.7 3.1	31.52 .06	19.6 3.2	3.64 .31	68.4 3.1	32.09 .41	62.3 2.7	4.06 .32	43.4 2.4
	.10	3.2	.05	3.3	.59		.27	3.0	.23	2.6
19.0	10.22	31.5	31.57	16.3	4.23	65.3	31.82	59.3	3.83	40.8
29.0	10.55 .33	28.4 3.1	31.72 .15	13.2 3.1	5.08 .85	62.3 3.0	31.72 .10	56.2 3.1	3.69 .14	37.8 3.0
Aug. 8.0	11.10 .55	25.5 2.9	31.99 .27	10.1 3.1	6.17 1.09	59.4 2.9	31.78 .06	53.1 3.1	3.65 .04	34.8 3.0
17.9	11.86 .76	22.9 2.6	32.35 .17	7.3 2.8	7.49 1.32	56.8 2.6	32.01 .23	50.0 3.1	3.70 .05	31.7 3.1
27.9	12.81 .95	20.7 2.2	32.80 .45	4.9 2.4	9.00 1.51	54.5 2.3	32.41 .40	47.1 2.9	3.86 .16	28.7 3.0
	1.11	1.8	.53	2.0	1.68	2.1	.55	2.6	.27	2.9
Sept. 6.9	13.92	18.9	33.33	2.9	10.68	52.4	32.96	44.5	4.13	25.8
16.8	15.15 1.23	17.7 1.2	33.94 .61	1.5 1.4	12.49 1.81	50.8 1.6	33.65 .69	42.2 2.3	4.49 .36	23.2 2.6
26.8	16.47 1.32	17.1 0.6	34.59 .65	0.6 0.9	14.41 1.92	49.5 1.3	34.47 .82	40.5 1.7	4.94 .45	21.1 2.2
Oct. 6.8	17.84 1.37	17.1 0.0	35.27 .68	0.4 0.2	16.40 1.99	48.7 0.8	35.39 .92	39.2 1.3	5.48 .54	19.4 1.7
16.8	19.20 1.36	17.7 0.6	35.96 .69	0.8 0.4	18.43 2.03	48.3 0.4	36.38 .99	38.6 0.6	6.08 .60	18.4 1.0
	1.30	1.3	.69	1.1	2.02	0.1	1.04	0.1	.66	0.5
26.7	20.50	19.0	36.65	1.9	20.45	48.4	37.42	38.7	6.74	17.9
Nov. 5.7	21.71 1.21	20.9 1.9	37.30 .65	3.7 1.8	22.41 1.96	49.0 0.6	38.46 1.04	39.4 0.7	7.43 .69	18.1 0.2
15.7	22.76 1.05	23.3 2.4	37.89 .59	6.0 2.3	24.27 1.86	50.0 1.0	39.47 1.01	40.8 1.4	8.12 .69	18.9 0.8
25.7	23.64 .88	26.2 2.9	38.41 .52	8.8 2.8	25.98 1.71	51.5 1.5	40.41 .94	42.8 2.0	8.81 .69	20.4 1.5
Dec. 5.6	24.29 .65	29.5 3.3	38.84 .43	12.1 3.3	27.50 1.52	53.5 2.0	41.25 .84	45.3 2.5	9.46 .65	22.5 2.1
	.40	3.5	.31	3.5	1.28	2.3	.71	3.0	.58	2.7
15.6	24.69	33.0	39.15	15.6	28.78	55.8	41.96	48.3	10.04	25.2
25.6	24.84 .15	36.6 3.6	39.35 .20	19.4 3.8	29.77 .99	58.5 2.7	42.51 .55	51.7 3.4	10.55 .51	28.3 3.1
35.5	24.72 .12	40.3 3.7	39.42 .07	23.2 3.8	30.45 .68	61.3 2.8	42.89 .38	55.3 3.6	10.96 .41	31.8 3.5

FIXED STARS, 1900.

627

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	♈ Draconis (H.).		♎ Chamæleontis.		♏ Antlæ.		♐ Chamæleontis.		♑ Octantis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 9 22	° ' " +81 45	h m 9 36	° ' " -80 29	h m 10 22	° ' " -30 33	h m 10 44	° ' " -80 0	h m 10 59	° ' " -84 3
	s	"	s	"	s	"	s	"	s	"
Jan. 0.7	60.75	46.7	56.10	24.0	36.43	31.4	55.54	35.8	67.70	10.4
10.6	61.93	48.7	56.86	27.4	36.72	34.4	56.60	38.7	69.51	13.0
20.6	62.86	51.1	57.39	31.1	36.96	37.4	57.49	41.9	71.05	16.0
30.6	63.51	53.8	57.69	34.9	37.16	40.5	58.19	45.5	72.30	19.4
Feb. 9.5	63.85	56.8	57.75	38.9	37.31	43.4	58.68	49.3	73.21	23.1
19.5	63.88	59.8	57.58	42.8	37.41	46.3	58.96	53.2	73.79	26.9
Mar 1.5	63.61	62.7	57.19	46.6	37.45	48.9	59.03	57.1	74.03	30.9
11.5	63.04	65.5	56.60	50.1	37.45	51.3	58.89	61.0	73.93	34.8
21.4	62.23	68.0	55.83	53.4	37.40	53.5	58.57	64.7	73.51	38.6
31.4	61.19	70.2	54.90	56.4	37.32	55.3	58.07	68.2	72.79	42.2
Apr. 10.4	59.99	71.9	53.85	58.9	37.21	56.7	57.41	71.4	71.79	45.6
20.4	58.68	73.0	52.70	61.0	37.08	57.9	56.61	74.3	70.54	48.7
30.3	57.30	73.6	51.48	62.6	36.93	58.6	55.70	76.7	69.08	51.4
May 10.3	55.92	73.6	50.21	63.7	36.78	59.0	54.70	78.7	67.44	53.6
20.3	54.58	73.1	48.94	64.2	36.62	59.1	53.63	80.2	65.66	55.4
30.2	53.32	72.0	47.69	64.2	36.47	58.8	52.51	81.1	63.79	56.6
June 9.2	52.19	70.4	46.49	63.7	36.32	58.2	51.39	81.5	61.87	57.3
19.2	51.21	68.4	45.37	62.6	36.19	57.2	50.28	81.3	59.94	57.4
29.2	50.42	65.9	44.36	61.0	36.07	56.0	49.21	80.6	58.06	57.0
July 9.1	49.84	63.1	43.48	59.0	35.97	54.5	48.22	79.4	56.29	56.0
19.1	49.47	60.1	42.77	56.7	35.89	52.8	47.33	77.7	54.67	54.5
29.1	49.33	56.8	42.24	54.0	35.84	50.9	46.57	75.5	53.25	52.6
Aug. 8.1	49.11	53.4	41.92	51.0	35.82	48.9	45.97	73.0	52.08	50.2
18.0	49.72	50.0	41.82	48.0	35.82	46.9	45.55	70.2	51.21	47.5
28.0	50.25	46.5	41.95	44.9	35.86	45.0	45.33	67.2	50.68	44.6
Sept. 7.0	50.99	43.2	42.31	41.9	35.94	43.2	45.33	64.1	50.51	41.5
16.9	51.94	39.9	42.89	39.1	36.06	41.6	45.56	61.0	50.72	38.4
26.9	53.07	36.9	43.69	36.6	36.22	40.3	46.01	58.1	51.31	35.4
Oct. 6.9	54.38	34.2	44.69	34.5	36.42	39.4	46.68	55.5	52.28	32.6
16.9	55.84	31.8	45.85	32.9	36.66	38.9	47.55	53.2	53.60	30.2
26.8	57.42	29.8	47.13	31.9	36.93	38.9	48.60	51.4	55.23	28.1
Nov. 5.8	59.10	28.3	48.50	31.6	37.24	39.3	49.80	50.2	57.12	26.6
15.8	60.83	27.3	49.91	31.9	37.58	40.3	51.10	49.6	59.20	25.7
25.8	62.57	26.8	51.30	32.9	37.93	41.7	52.46	49.6	61.41	25.4
Dec. 5.7	64.28	26.9	52.63	34.5	38.28	43.6	53.84	50.3	63.66	25.8
15.7	65.91	27.6	53.86	36.7	38.64	45.9	55.19	51.6	65.88	26.8
25.7	67.41	28.8	54.93	39.4	38.97	48.5	56.45	53.5	67.99	28.4
35.6	68.73	30.5	55.81	42.6	39.28	51.3	57.60	56.0	69.93	30.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ξ Hydræ.		β Chamæleontis.		6 Ursæ Minoris (B).		32 ^d Camelopardalis (H.).		δ Muscæ.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.
	h m I I 28	° ' 18	h m I 2 I 2	° ' 45	h m I 2 I 3	° ' 88 I 4	h m I 2 48	° ' 83 56	h m I 2 55	° ' 7 I 0
	s	"	s	"	s	"	s	"	s	"
Jan. 0.7	6.54	13.9	31.16	12.3	83.2	48.1	21.46	56.6	24.69	21.5
10.7	6.88 .34	16.5 2.6	32.38 1.22	14.0 1.7	90.4 7.2	48.1 0.0	23.60 2.14	56.0 0.6	25.51 .82	22.8 1.3
20.7	7.19 .31	19.3 2.8	33.52 1.14	16.3 2.3	97.3 6.9	48.8 0.7	25.71 2.11	56.1 0.1	26.30 .79	24.6 1.8
30.7	7.46 .27	22.2 2.9	34.54 1.02	19.1 2.8	103.6 6.3	50.1 1.3	27.73 2.02	56.9 0.8	27.04 .74	27.0 2.4
Feb. 9.6	7.68 .22	25.0 2.8	35.43 0.89	22.2 3.1	109.2 5.6	52.0 1.9	29.57 1.84	58.3 1.4	27.71 .67	29.7 2.7
	17	2.8	.73	3.5	4.6	2.3	1.60	2.0	.59	3.1
19.6	7.85	27.8	36.16	25.7	113.8	54.3	31.17	60.3	28.30	32.8
Mar. 1.6	7.98 .13	30.5 2.7	36.72 .56	29.4 3.7	117.3 3.5	57.0 2.7	32.46 1.29	62.7 2.4	28.80 .50	36.1 3.3
11.5	8.06 .08	33.0 2.5	37.11 .39	33.2 3.8	119.5 2.2	60.0 3.0	33.41 .95	65.5 2.8	29.20 .40	39.6 3.5
21.5	8.09 .03	35.3 2.3	37.33 .22	37.0 3.8	120.4 0.9	63.2 3.2	33.99 .58	68.5 3.0	29.50 .30	43.1 3.5
31.5	8.09 .00	37.3 2.0	37.38 .05	40.7 3.7	119.9 0.5	66.4 3.2	34.18 .19	71.7 3.2	29.70 .20	46.7 3.6
	.04	1.8	.11	3.7	1.8	3.0	.21	3.1	.10	3.5
Apr. 10.5	8.05	39.1	37.27	44.4	118.1	69.4	33.97	74.8	29.80	50.2
20.4	7.98 .07	40.5 1.4	37.01 .26	47.8 3.4	115.0 3.1	72.2 2.8	33.40 .57	77.9 3.1	29.81 .01	53.5 3.3
30.4	7.88 .10	41.7 1.2	36.60 .41	51.0 3.2	110.8 4.2	74.7 2.5	32.49 .91	80.7 2.8	29.72 .09	56.7 3.2
May 10.4	7.77 .11	42.5 0.8	36.06 .54	53.8 2.8	105.7 5.1	76.8 2.1	31.28 1.21	83.1 2.4	29.55 .17	59.5 2.8
20.4	7.65 .12	43.0 0.5	35.40 .66	56.2 2.4	99.8 5.9	78.4 1.6	29.81 1.47	85.2 2.1	29.30 .25	62.1 2.6
	.14	0.2	.75	2.0	6.4	1.1	1.68	1.6	.32	2.2
30.3	7.51	43.2	34.65	58.2	93.4	79.5	28.13	86.8	28.98	64.3
June 9.3	7.38 .13	43.0 0.2	33.82 .83	60.0 1.8	86.6 6.8	80.1 0.6	26.30 1.83	87.9 1.1	28.60 .38	66.0 1.7
19.3	7.24 .14	42.5 0.5	32.92 .90	60.6 0.6	79.6 7.0	80.0 0.1	24.38 1.92	88.4 0.5	28.16 .44	67.2 1.2
29.2	7.10 .14	41.7 0.8	32.00 .92	61.0 0.4	72.7 6.9	79.4 0.6	22.40 1.98	88.4 0.0	27.68 .48	68.0 0.8
July 9.2	6.97 .13	40.7 1.0	31.06 .94	60.9 0.1	65.9 6.8	78.2 1.2	20.44 1.96	87.8 0.6	27.18 .50	68.2 0.2
	.12	1.3	.91	0.7	6.4	1.7	1.92	1.2	.52	0.3
19.2	6.85	39.4	30.15	60.2	59.5	76.5	18.52	86.6	26.66	67.9
29.2	6.75 .10	37.9 1.5	29.28 .87	59.0 1.2	53.7 5.8	74.4 2.1	16.70 1.82	85.0 1.6	26.15 .51	67.1 0.8
Aug. 8.1	6.67 .08	36.2 1.7	28.49 .79	57.3 1.7	48.5 5.2	71.8 2.6	15.02 1.68	82.9 2.1	25.66 .49	65.8 1.3
18.1	6.61 .06	34.4 1.8	27.81 .68	55.1 2.2	44.0 4.5	68.8 3.0	13.51 1.51	80.3 2.6	25.21 .45	64.0 1.8
28.1	6.58 .03	32.6 1.8	27.27 .54	52.6 2.5	40.4 3.6	65.5 3.3	12.21 1.30	77.4 2.9	24.83 .38	61.9 2.1
	.01	1.8	.38	2.8	2.7	3.5	1.07	3.3	.30	2.5
Sept. 7.1	6.59	30.8	26.89	49.8	37.7	62.0	11.14	74.1	24.53	59.4
17.0	6.63 .04	29.2 1.6	26.70 .19	46.8 3.0	35.9 1.8	58.3 3.7	10.33 .81	70.6 3.5	24.32 .21	56.7 2.7
27.0	6.72 .09	27.7 1.5	26.70 .00	43.7 3.1	35.2 0.7	54.5 3.8	9.80 .53	66.9 3.7	24.23 .09	53.8 2.9
Oct. 7.0	6.86 .14	26.6 1.1	26.92 .22	40.7 3.0	35.6 0.4	50.7 3.8	9.58 .22	63.1 3.8	24.26 .03	50.9 2.9
16.9	7.04 .18	25.7 0.9	27.34 .42	37.8 2.9	37.0 1.4	46.9 3.8	9.68 .10	59.3 3.8	24.42 .16	48.1 2.8
	.23	0.4	.63	2.5	2.5	3.7	.42		.29	2.7
26.9	7.27	25.3	27.97	35.3	39.5	43.2	10.10	55.5	24.71	45.4
Nov. 5.9	7.54 .27	25.3 0.0	28.79 .82	33.1 2.2	43.0 3.5	39.9 3.3	10.84 .71	51.8 3.7	25.13 .42	43.1 2.3
15.9	7.84 .30	25.7 0.4	29.77 .98	31.4 1.7	47.5 4.5	36.8 3.1	11.90 1.06	48.4 3.4	25.66 .53	41.2 1.9
25.8	8.18 .34	26.6 0.9	30.89 1.12	30.2 1.2	52.8 5.3	34.1 2.7	13.26 1.36	45.4 3.0	26.30 .64	39.8 1.4
Dec. 5.8	8.54 .36	28.0 1.4	32.10 1.21	29.7 0.5	58.9 6.1	32.0 2.1	14.89 1.63	42.7 2.7	27.03 .73	38.9 0.9
	.36	1.8	1.26	0.1	6.7	1.6	1.84	2.1	.78	0.2
15.8	8.90	29.8	33.36	29.8	65.6	30.4	16.73	40.6	27.81	38.7
25.8	9.27 .37	32.0 2.2	34.64 1.28	30.6 0.8	72.6 7.0	29.4 1.0	18.74 2.01	39.0 1.6	28.63 .82	39.0 0.3
35.7	9.62 .35	34.4 2.4	35.90 1.26	31.9 1.3	79.8 7.2	29.0 0.4	20.85 2.11	38.1 0.9	29.45 .82	39.9 0.9

FIXED STARS, 1900.

(CONSTANTS OF STRUVE AND PETERS.)

629

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	κ Octantis.		δ Octantis.		α Apodis.		ρ Octantis.		γ Apodis.	
	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 13 24	° ' -85 16	h m 14 10	° ' -83 12	h m 14 35	° ' -78 36	h m 15 20	° ' -84 7	h m 16 18	° ' -78 40
	s "	"	s "	"	s "	"	s "	"	s "	"
Jan. 0.8	43.55	10.7	51.53	21.3	25.18	59.5	8.33	42.5	4.09	11.0
10.8	46.54 ^{2.99}	11.2 ^{0.5}	53.65 ^{2.12}	21.2 ^{0.1}	26.48 ^{1.30}	59.1 ^{0.4}	10.61 ^{2.28}	41.3 ^{1.2}	5.17 ^{1.08}	9.1 ^{1.9}
20.8	49.49 ^{2.95}	12.4 ^{1.2}	55.81 ^{2.16}	21.7 ^{0.5}	27.82 ^{1.34}	59.3 ^{0.2}	13.06 ^{2.45}	40.7 ^{0.6}	6.38 ^{1.21}	7.8 ^{1.3}
30.8	52.32 ^{2.83}	14.1 ^{1.7}	57.95 ^{2.24}	22.7 ^{1.0}	29.17 ^{1.35}	60.1 ^{0.8}	15.59 ^{2.53}	40.6 ^{0.1}	7.68 ^{1.30}	6.9 ^{0.9}
Feb. 9.7	54.96 ^{2.64}	16.3 ^{2.2}	60.02 ^{2.07}	24.3 ^{1.6}	30.48 ^{1.31}	61.3 ^{1.2}	18.15 ^{2.56}	41.0 ^{0.4}	9.04 ^{1.36}	6.5 ^{0.4}
	57.35 ^{2.39}	18.9 ^{2.6}	61.96 ^{1.94}	26.3 ^{2.0}	31.74 ^{1.26}	63.1 ^{1.8}	20.67 ^{2.52}	42.0 ^{1.0}	10.42 ^{1.38}	6.6 ^{0.1}
Mar. 19.7	57.35 ^{2.09}	18.9 ^{3.1}	61.96 ^{1.79}	26.3 ^{2.5}	31.74 ^{1.18}	63.1 ^{2.2}	20.67 ^{2.44}	42.0 ^{1.4}	10.42 ^{1.37}	6.6 ^{0.6}
1.7	59.44 ^{1.75}	22.0 ^{3.3}	63.75 ^{1.59}	28.8 ^{2.9}	32.92 ^{1.07}	65.3 ^{2.5}	23.11 ^{2.29}	43.4 ^{1.9}	11.79 ^{1.34}	7.2 ^{1.0}
11.7	61.19 ^{1.40}	25.3 ^{3.5}	65.34 ^{1.36}	31.7 ^{3.1}	33.99 ^{0.95}	67.8 ^{2.8}	25.40 ^{2.11}	45.3 ^{2.3}	13.13 ^{1.28}	8.2 ^{1.4}
21.6	62.59 ^{1.01}	28.8 ^{3.6}	66.70 ^{1.12}	34.8 ^{3.3}	34.94 ^{0.82}	70.6 ^{3.1}	27.51 ^{1.90}	47.6 ^{2.6}	14.41 ^{1.21}	9.6 ^{1.8}
31.6	63.60 ^{0.63}	32.4 ^{3.7}	67.82 ^{0.87}	38.1 ^{3.5}	35.76 ^{0.66}	73.7 ^{3.2}	29.41 ^{1.63}	50.2 ^{2.9}	15.62 ^{1.09}	11.4 ^{2.1}
Apr. 10.6	64.23 ^{0.23}	36.1 ^{3.7}	68.69 ^{0.60}	41.6 ^{3.5}	36.42 ^{0.51}	76.9 ^{3.3}	31.04 ^{1.36}	53.1 ^{3.1}	16.71 ^{0.98}	13.5 ^{2.4}
20.5	64.46 ^{0.16}	39.8 ^{3.6}	69.29 ^{0.32}	45.1 ^{3.5}	36.93 ^{0.35}	80.2 ^{3.3}	32.40 ^{1.05}	56.2 ^{3.2}	17.69 ^{0.84}	15.9 ^{2.7}
30.5	64.30 ^{0.55}	43.4 ^{3.4}	69.61 ^{0.04}	48.6 ^{3.4}	37.28 ^{0.18}	83.5 ^{3.3}	33.45 ^{0.73}	59.4 ^{3.3}	18.53 ^{0.69}	18.6 ^{2.8}
May 10.5	63.75 ^{0.91}	46.8 ^{3.1}	69.65 ^{0.23}	52.0 ^{3.2}	37.46 ^{0.02}	86.8 ^{3.2}	34.18 ^{0.40}	62.7 ^{3.3}	19.22 ^{0.53}	21.4 ^{2.9}
20.5	62.84 ^{1.25}	49.9 ^{2.8}	69.42 ^{0.50}	55.2 ^{3.0}	37.48 ^{0.15}	90.0 ^{3.0}	34.58 ^{0.06}	66.0 ^{3.2}	19.75 ^{0.35}	24.3 ^{2.9}
June 30.4	61.59 ^{1.56}	52.7 ^{2.4}	68.92 ^{0.75}	58.2 ^{2.7}	37.33 ^{0.31}	93.0 ^{2.7}	34.64 ^{0.28}	69.2 ^{3.0}	20.10 ^{0.18}	27.2 ^{3.0}
9.4	60.03 ^{1.83}	55.1 ^{1.9}	68.17 ^{0.99}	60.9 ^{2.4}	37.02 ^{0.45}	95.7 ^{2.4}	34.36 ^{0.61}	72.2 ^{2.9}	20.28 ^{0.01}	30.2 ^{2.8}
19.4	58.20 ^{2.05}	57.0 ^{1.5}	67.18 ^{1.19}	63.3 ^{1.9}	36.57 ^{0.60}	98.1 ^{2.0}	33.75 ^{0.92}	75.1 ^{2.5}	20.27 ^{0.19}	33.0 ^{2.6}
29.4	56.15 ^{2.21}	58.5 ^{0.9}	65.99 ^{1.36}	65.2 ^{1.4}	35.97 ^{0.71}	100.1 ^{1.5}	32.83 ^{1.20}	77.6 ^{1.20}	20.08 ^{0.57}	35.6 ^{2.4}
July 9.3	53.94 ^{2.30}	59.4 ^{0.4}	64.63 ^{1.49}	66.6 ^{0.9}	35.26 ^{0.81}	101.6 ^{1.1}	31.63 ^{1.44}	79.7 ^{1.7}	19.71 ^{0.33}	38.0 ^{2.1}
Aug. 19.3	51.64 ^{2.33}	59.8 ^{0.2}	63.14 ^{1.57}	67.5 ^{0.3}	34.45 ^{0.89}	102.7 ^{0.6}	30.19 ^{1.65}	81.4 ^{1.2}	19.18 ^{0.68}	40.1 ^{1.7}
29.3	49.31 ^{2.27}	59.6 ^{0.8}	61.57 ^{1.60}	67.8 ^{0.2}	33.56 ^{0.93}	103.3 ^{0.0}	28.54 ^{1.80}	82.6 ^{0.7}	18.50 ^{0.80}	41.8 ^{1.2}
8.2	47.04 ^{2.14}	58.8 ^{1.3}	59.97 ^{1.58}	67.6 ^{0.8}	32.63 ^{0.93}	103.3 ^{0.5}	26.74 ^{1.88}	83.3 ^{0.1}	17.70 ^{0.89}	43.0 ^{0.8}
18.2	44.90 ^{1.92}	57.5 ^{1.9}	58.39 ^{1.49}	66.8 ^{1.3}	31.70 ^{0.90}	102.8 ^{1.1}	24.86 ^{1.89}	83.4 ^{1.0}	16.81 ^{0.96}	43.8 ^{0.3}
28.2	42.98 ^{1.62}	55.6 ^{2.3}	56.90 ^{1.34}	65.5 ^{1.8}	30.80 ^{0.84}	101.7 ^{1.6}	22.97 ^{1.83}	83.0 ^{1.0}	15.85 ^{0.98}	44.1 ^{0.3}
Sept. 7.2	41.36 ^{1.26}	53.3 ^{2.6}	55.56 ^{1.15}	63.7 ^{2.3}	29.96 ^{0.74}	100.1 ^{2.0}	21.14 ^{1.70}	82.0 ^{1.6}	14.87 ^{0.96}	43.8 ^{0.8}
17.1	40.10 ^{0.84}	50.7 ^{2.9}	54.41 ^{0.88}	61.4 ^{2.6}	29.22 ^{0.61}	98.1 ^{2.4}	19.44 ^{1.50}	80.4 ^{2.0}	13.91 ^{0.91}	43.0 ^{1.4}
27.1	39.26 ^{0.37}	47.8 ^{3.1}	53.53 ^{0.59}	58.8 ^{2.9}	28.61 ^{0.43}	95.7 ^{2.7}	17.94 ^{1.89}	78.4 ^{2.5}	13.00 ^{0.80}	41.6 ^{1.8}
Oct. 7.1	38.89 ^{0.14}	44.7 ^{3.2}	52.94 ^{0.25}	55.9 ^{3.1}	28.18 ^{0.24}	93.0 ^{3.0}	16.72 ^{2.02}	75.9 ^{2.8}	12.20 ^{0.67}	39.8 ^{2.3}
17.1	39.03 ^{0.64}	41.5 ^{3.0}	52.69 ^{0.11}	52.8 ^{3.1}	27.94 ^{0.03}	90.0 ^{3.0}	15.83 ^{0.51}	73.1 ^{3.0}	11.53 ^{0.49}	37.5 ^{2.6}
Nov. 27.0	39.67 ^{1.15}	38.5 ^{2.9}	52.80 ^{0.47}	49.7 ^{3.0}	27.91 ^{0.19}	87.0 ^{3.0}	15.32 ^{1.10}	70.1 ^{3.1}	11.04 ^{0.29}	34.9 ^{2.8}
6.0	40.82 ^{1.62}	35.6 ^{2.6}	53.27 ^{0.83}	46.7 ^{2.9}	28.10 ^{0.42}	84.0 ^{2.8}	15.22 ^{0.33}	67.0 ^{3.2}	10.75 ^{0.07}	32.1 ^{3.0}
16.0	42.44 ^{2.04}	33.0 ^{2.1}	54.10 ^{1.17}	43.8 ^{2.5}	28.52 ^{0.63}	81.2 ^{2.6}	15.55 ^{0.76}	63.8 ^{3.0}	10.68 ^{0.39}	29.1 ^{3.0}
25.9	44.48 ^{2.40}	30.9 ^{1.7}	55.27 ^{1.47}	41.3 ^{2.2}	29.15 ^{0.83}	78.6 ^{2.2}	16.31 ^{1.16}	60.8 ^{2.8}	10.83 ^{0.15}	26.1 ^{2.9}
Dec. 5.9	46.88 ^{2.67}	29.2 ^{1.1}	56.74 ^{1.72}	39.1 ^{1.6}	29.98 ^{1.00}	76.4 ^{1.8}	17.47 ^{1.54}	58.0 ^{2.4}	11.22 ^{0.60}	23.2 ^{2.7}
15.9	49.55 ^{2.86}	28.1 ^{0.5}	58.46 ^{1.92}	37.5 ^{1.1}	30.98 ^{1.14}	74.6 ^{1.3}	19.01 ^{1.86}	55.6 ^{2.0}	11.82 ^{0.80}	20.5 ^{2.5}
25.9	52.41 ^{2.97}	27.6 ^{0.1}	60.38 ^{2.05}	36.4 ^{0.5}	32.12 ^{1.25}	73.3 ^{0.8}	20.87 ^{2.14}	53.6 ^{1.5}	12.62 ^{0.98}	18.0 ^{2.1}
35.8	55.38	27.7	62.43	35.9	33.37	72.5	23.01	52.1	13.60	15.9

FIXED STARS, 1900.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ε Ursæ Minoris.		γ ² Sagittarii.		η Serpentis.		ζ Pavonis.		σ Octantis.	
	Right Ascension.	Declina- tion North.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 16 55	° +82 11	h m 17 59	° -30 25	h m 18 16	° -2 55	h m 18 31	° -71 30	h 18	° -89 14
	s	"	s	"	s	"	s	"	m s	"
Jan. 1.0	60.71	58.8	22.80	28.4	7.85	28.1	19.16	46.0	58 32.1	74.3
11.0	61.40	55.6	23.01	28.0	8.01	29.3	19.52	43.2	58 36.5	70.8
20.9	62.36	52.8	23.26	27.7	8.20	30.5	20.00	40.6	58 44.0	67.4
30.9	63.55	50.4	23.54	27.5	8.42	31.6	20.58	38.2	58 54.3	64.3
Feb. 9.9	64.93	48.6	23.85	27.3	8.67	32.5	21.25	36.1	59 7.1	61.4
	1.52	1.3	1.32	0.1	1.26	0.8	1.74	1.8	14.9	2.5
19.8	66.45	47.3	24.17	27.2	8.93	33.3	21.99	34.3	59 22.0	58.9
Mar. 1.8	68.05	46.7	24.50	27.1	9.21	33.8	22.78	32.8	59 38.6	56.7
11.8	69.67	46.8	24.84	27.0	9.49	34.1	23.61	31.7	59 56.5	55.0
21.8	71.24	47.5	25.19	26.9	9.78	34.1	24.47	31.0	60 15.3	53.8
31.7	72.71	48.8	25.53	26.8	10.07	33.8	25.33	30.6	60 34.6	53.0
	1.32	1.9	1.33	0.0	1.29	0.5	1.86	0.1	19.3	0.3
Apr. 10.7	74.03	50.7	25.86	26.8	10.36	33.3	26.19	30.7	60 53.9	52.7
20.7	75.16	53.0	26.18	26.8	10.64	32.5	27.02	31.1	61 12.9	52.9
30.7	76.05	55.8	26.49	26.8	10.91	31.5	27.82	31.9	61 31.2	53.6
May 10.6	76.69	58.9	26.78	26.8	11.16	30.4	28.57	33.1	61 48.3	54.7
20.6	77.06	62.1	27.04	26.9	11.40	29.1	29.25	34.6	62 4.0	56.2
	1.09	3.3	1.24	0.2	1.20	1.3	1.60	1.8	13.9	1.9
30.6	77.15	65.4	27.28	27.1	11.60	27.8	29.85	36.4	62 17.9	58.1
June 9.5	76.95	68.7	27.47	27.3	11.78	26.4	30.35	38.4	62 29.7	60.4
19.5	76.49	71.8	27.63	27.6	11.93	25.1	30.75	40.6	62 39.1	63.0
29.5	75.76	74.8	27.75	28.0	12.03	23.8	31.04	43.0	62 45.8	65.7
July 9.5	74.79	77.5	27.82	28.4	12.10	22.6	31.20	45.4	62 49.7	68.6
	1.19	2.3	1.02	0.4	1.03	1.1	1.04	2.5	1.0	3.0
19.4	73.60	79.8	27.84	28.8	12.13	21.5	31.24	47.9	62 50.7	71.6
29.4	72.22	81.8	27.81	29.2	12.11	20.6	31.16	50.3	62 48.6	74.6
Aug. 8.4	70.69	83.3	27.74	29.6	12.06	19.8	30.95	52.5	62 43.7	77.4
18.4	69.03	84.4	27.63	30.0	11.97	19.1	30.62	54.4	62 35.9	80.0
28.3	67.29	84.9	27.48	30.3	11.84	18.6	30.20	56.1	62 25.6	82.2
	1.79	0.1	1.17	0.2	1.15	0.4	1.51	1.3	12.5	1.8
Sept. 7.3	65.50	85.0	27.31	30.5	11.69	18.2	29.69	57.4	62 13.1	84.0
17.3	63.70	84.6	27.11	30.5	11.52	18.0	29.13	58.2	61 58.9	85.4
27.2	61.93	83.6	26.91	30.4	11.34	17.0	28.52	58.6	61 43.4	86.2
Oct. 7.2	60.23	82.2	26.71	30.2	11.17	18.0	27.91	58.4	61 27.2	86.4
17.2	58.66	80.3	26.53	29.9	11.00	18.2	27.32	57.7	61 11.0	85.9
	1.42	2.3	1.16	0.4	1.15	0.3	1.55	1.1	15.6	1.0
27.2	57.24	78.0	26.37	29.5	10.85	18.5	26.77	56.6	60 55.4	84.9
Nov. 6.1	56.02	75.3	26.25	28.9	10.73	19.0	26.30	55.0	60 41.0	83.3
16.1	55.04	72.2	26.18	28.3	10.65	19.7	25.92	52.9	60 28.5	81.1
26.1	54.32	68.9	26.15	27.7	10.61	20.5	25.66	50.6	60 18.3	78.5
Dec. 6.1	53.90	65.5	26.18	27.1	10.61	21.5	25.53	48.0	60 10.9	75.5
	1.12	3.6	1.08	0.6	1.05	1.1	1.01	2.8	4.3	3.3
16.0	53.78	61.9	26.26	26.5	10.66	22.6	25.54	45.2	60 6.6	72.2
26.0	53.98	58.5	26.40	26.0	10.75	23.7	25.68	42.4	60 5.6	68.7
36.0	54.49	55.1	26.58	25.6	10.88	24.9	25.95	39.6	60 7.8	65.2
	1.51	3.4	1.18	0.4	1.13	1.2	1.27	2.8	2.2	3.5

(CONSTANTS OF STRUVE AND PETERS.)

631

Mean Solar Date.	12 Year Catalogue 1879.			λ ¹ Octantis.		ν Octantis.		β Octantis.		γ ¹ Octantis.	
	Right Ascension.	Declina- tion North.		Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.	Right Ascension.	Declina- tion South.
	h m 20 51	° ' 180 10		h m 21 35	° ' 83 10	h m 22 12	° ' 86 27	h m 22 35	° ' 81 53	h m 23 46	° ' 82 33
	s	"		s	"	s	"	s	"	s	"
Jan. 1.2	61.04		55.7	30.42	50.5	24.07	102.7	47.16	91.1	12.31	101.2
11.1	60.38	.66	52.9	29.65	47.5	21.94	99.9	46.15	88.6	10.84	99.5
21.1	59.94	.44	49.8	29.18	44.1	20.33	96.6	45.35	85.6	9.51	97.2
31.1	59.73	.21	46.6	29.02	40.6	19.29	93.1	44.77	82.3	8.37	94.5
Feb. 10.0	59.78	.05	43.3	29.16	36.9	18.82	89.4	44.43	78.8	7.43	91.3
		.28									
	20.0		40.1	29.60	33.2	18.94	85.5	44.33	75.1	6.73	87.9
Mar. 2.0	60.58	.52	37.1	30.32	29.6	19.62	81.7	44.48	71.3	6.27	84.2
12.0	61.32	.74	34.5	31.31	26.1	20.84	78.0	44.86	67.5	6.07	80.4
21.0	62.24	.92	32.2	32.54	22.8	22.56	74.4	45.46	63.8	6.12	76.6
31.0	63.32	1.08	30.5	33.98	19.9	24.73	71.1	46.28	60.3	6.42	72.7
		1.20									
Apr. 10.9	64.52		29.4	35.60	17.2	27.32	68.1	47.29	57.1	6.97	69.0
20.9	65.79	1.27	28.8	37.37	15.0	30.25	65.4	48.48	54.1	7.75	65.5
30.8	67.09	1.30	28.9	39.25	13.2	33.47	63.1	49.81	51.6	8.75	62.3
May 10.8	68.38	1.29	29.7	41.20	11.9	36.90	61.4	51.27	49.4	9.94	59.3
20.8	69.62	1.24	31.0	43.18	11.1	40.47	60.1	52.81	47.7	11.30	56.8
		1.15									
	30.7		32.8	45.14	10.8	44.10	59.3	54.41	46.6	12.80	54.8
June 9.7	71.79	1.02	35.2	47.05	11.0	47.70	59.1	56.03	45.9	14.41	53.2
19.7	72.67	0.88	37.9	48.85	11.7	51.19	59.4	57.62	45.8	16.08	52.2
29.7	73.37	.70	41.0	50.50	12.9	54.48	60.3	59.15	46.2	17.76	51.7
July 9.6	73.88	.51	44.4	51.94	14.6	57.46	61.6	60.58	47.2	19.42	51.8
		.31									
	19.6		47.9	53.15	16.7	60.07	63.4	61.85	48.7	21.00	52.4
29.6	74.29	.10	51.6	54.08	19.1	62.21	65.6	62.94	50.6	22.46	53.6
Aug. 8.6	74.17	.12	55.3	54.71	21.8	63.81	68.2	63.81	52.9	23.74	55.4
18.5	73.85	.32	58.9	55.00	24.7	64.83	71.0	64.43	55.5	24.81	57.5
28.5	73.34	.51	62.3	54.96	27.6	65.22	74.0	64.78	58.3	25.63	60.0
		.70									
Sept. 7.5	72.64		65.6	54.58	30.5	64.96	77.0	64.84	61.3	26.17	62.9
17.4	71.77	0.87	68.6	53.88	33.2	64.05	80.0	64.61	64.3	26.41	65.9
27.4	70.76	1.01	71.3	52.87	35.7	62.52	82.7	64.11	67.2	26.33	69.0
Oct. 7.4	69.62	1.14	73.5	51.60	37.8	60.41	85.2				

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